						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic Acid (PFUnDA)	Perfluorododecanoic Acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecano ic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 fluorotelomer sulfonic acid (10:2 FTS)
						ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*									
PFAS NEMP 2020 Freshwater 95%										0.13						220									
PFAS NEMP 2020 Recreational Water																**10**									
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
Off-site - Ellen Brook	**SW022**	**9/06/2023**	**0967_SW022_230609**	**Normal**	**EP2307643**	0.02	0.02	0.18	<0.02	0.43	<0.02	<0.1	0.16	0.14	0.04	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.32	<0.05	<0.05
Off-site - Ellen Brook	**SW022**	**10/06/2023**	**0967_SW022_230610**	**Normal**	**EP2307675**	0.03	0.03	0.26	<0.02	0.40	<0.02	<0.1	0.17	0.16	0.04	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.14	<0.05	<0.05
Off-site - Ellen Brook	**SW022**	**11/06/2023**	**0967_SW022_230611**	**Normal**	**EP2307678**	0.04	0.04	0.34	<0.02	0.62	<0.02	<0.1	0.23	0.23	0.06	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.60	<0.05	<0.05
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_QC116_230612**	**Field Duplicate**	**EP2307715**	0.03	0.03	0.25	<0.02	0.46	<0.02	<0.1	0.13	0.13	0.04	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.23	<0.05	<0.05
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_QC216_230612**	**Interlab Duplicate**	**999535**	0.03	0.02	0.23	0.01	0.58	<0.01	0.05	0.12	0.11	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	<0.01	<0.01
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_SW022_230612**	**Normal**	**EP2307715**	0.04	0.03	0.27	<0.02	0.46	<0.02	<0.1	0.14	0.14	0.03	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.22	<0.05	<0.05
Off-site - Ellen Brook	**SW022**	**13/06/2023**	**0967_SW022_230613**	**Normal**	**EP2307798**	0.04	0.04	0.29	<0.02	0.42	<0.02	<0.1	0.16	0.16	0.04	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.20	<0.05	<0.05
Off-site - Ellen Brook	**SW025**	**9/06/2023**	**0967_SW025_230609**	**Normal**	**EP2307643**	0.04	0.04	0.54	0.03	1.65	<0.02	<0.1	<0.01	0.05	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW025**	**10/06/2023**	**0967_SW025_230610**	**Normal**	**EP2307675**	0.04	0.05	0.72	0.04	2.87	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW025**	**11/06/2023**	**0967_SW025_230611**	**Normal**	**EP2307678**	0.04	0.03	0.50	0.03	1.40	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW025**	**12/06/2023**	**0967_SW025_230612**	**Normal**	**EP2307715**	0.04	0.06	0.69	0.03	2.15	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW025**	**13/06/2023**	**0967_SW025_230613**	**Normal**	**EP2307798**	0.04	0.06	0.79	0.04	2.19	<0.02	<0.1	<0.02	0.06	<0.02	0.03	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW028**	**9/06/2023**	**0967_SW028_230609**	**Normal**	**EP2307643**	0.03	<0.02	0.17	<0.02	0.22	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW028**	**11/06/2023**	**0967_SW028_230611**	**Normal**	**EP2307678**	0.02	<0.02	0.21	<0.02	0.48	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW028**	**12/06/2023**	**0967_SW028_230612**	**Normal**	**EP2307715**	0.03	0.03	0.18	<0.02	0.22	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW028**	**13/06/2023**	**0967_SW028_230613**	**Normal**	**EP2307798**	0.03	0.02	0.18	<0.02	0.20	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW032**	**9/06/2023**	**0967_SW032_230609**	**Normal**	**EP2307643**	<0.02	<0.02	0.10	<0.02	0.27	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW032**	**10/06/2023**	**0967_SW032_230610**	**Normal**	**EP2307675**	0.03	0.02	0.25	<0.02	0.50	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW032**	**11/06/2023**	**0967_SW032_230611**	**Normal**	**EP2307678**	<0.02	<0.02	0.12	<0.02	0.40	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW032**	**12/06/2023**	**0967_SW032_230612**	**Normal**	**EP2307715**	0.03	0.02	0.23	<0.02	0.43	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW032**	**13/06/2023**	**0967_SW032_230613**	**Normal**	**EP2307798**	0.04	0.04	0.30	<0.02	0.64	<0.02	<0.1	0.02	0.06	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW034**	**9/06/2023**	**0967_SW034_230609**	**Normal**	**EP2307643**	0.03	0.02	0.24	<0.02	0.66	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW034**	**10/06/2023**	**0967_SW034_230610**	**Normal**	**EP2307675**	0.40	0.40	3.33	0.14	6.16	<0.02	0.2	0.25	1.00	0.09	0.20	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW034**	**11/06/2023**	**0967_SW034_230611**	**Normal**	**EP2307678**	0.45	0.39	3.92	0.15	7.38	0.02	0.3	0.29	1.16	0.10	0.22	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW034**	**12/06/2023**	**0967_SW034_230612**	**Normal**	**EP2307715**	0.54	0.48	4.30	0.20	8.72	<0.02	0.3	0.34	1.34	0.12	0.30	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW034**	**13/06/2023**	**0967_SW034_230613**	**Normal**	**EP2307798**	0.32	0.36	2.38	0.11	5.50	<0.02	0.2	0.22	0.72	0.07	0.17	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**9/06/2023**	**0967_SW036_230609**	**Normal**	**EP2307643**	0.03	0.03	0.30	<0.02	0.72	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**10/06/2023**	**0967_SW036_230610**	**Normal**	**EP2307676**	0.05	0.04	0.40	<0.02	0.78	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**11/06/2023**	**0967_SW036_230611**	**Normal**	**EP2307678**	0.05	0.04	0.40	<0.02	0.82	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_QC118_230612**	**Field Duplicate**	**EP2307718**	0.12	0.12	0.78	0.03	1.70	<0.02	<0.1	0.08	0.25	0.02	0.06	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_QC218_230612**	**Interlab Duplicate**	**999535**	0.08	0.09	0.65	0.04	2.1	<0.01	0.07	0.05	0.19	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_SW036_230612**	**Normal**	**EP2307718**	0.12	0.12	0.80	0.03	1.74	<0.02	<0.1	0.08	0.25	0.02	0.05	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_QC125_230613**	**Field Duplicate**	**EP2307806**	0.12	0.16	0.93	0.04	1.74	<0.02	<0.1	0.15	0.28	0.03	0.07	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_QC225_230613**	**Interlab Duplicate**	**999535**	0.11	0.11	0.94	0.05	2.1	<0.01	0.09	0.08	0.26	0.03	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_SW036_230613**	**Normal**	**EP2307806**	0.13	0.13	1.01	0.04	1.64	<0.02	<0.1	0.08	0.31	0.03	0.06	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW038**	**9/06/2023**	**0967_SW038_230609**	**Normal**	**EP2307643**	0.04	0.03	0.32	<0.02	0.79	<0.02	<0.1	0.02	0.09	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW038**	**10/06/2023**	**0967_SW038_230610**	**Normal**	**EP2307676**	0.05	0.04	0.40	<0.02	0.80	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW038**	**11/06/2023**	**0967_SW038_230611**	**Normal**	**EP2307678**	0.05	0.04	0.42	<0.02	0.87	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW038**	**12/06/2023**	**0967_SW038_230612**	**Normal**	**EP2307718**	0.11	0.11	0.79	0.02	1.82	<0.02	<0.1	0.07	0.28	0.03	0.07	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW038**	**13/06/2023**	**0967_SW038_230613**	**Normal**	**EP2307806**	0.13	0.14	0.92	0.04	1.70	<0.02	<0.1	0.16	0.28	0.03	0.06	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW048**	**9/06/2023**	**0967_SW048_230609**	**Normal**	**EP2307634**	0.05	<0.02	0.16	<0.02	0.39	<0.02	<0.1	0.03	0.04	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_QC108_230610**	**Field Duplicate**	**EP2307676**	<0.02	<0.02	0.13	<0.02	0.26	<0.02	<0.1	0.03	0.04	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_QC208_230610**	**Interlab Duplicate**	**999535**	0.01	0.01	0.10	<0.01	0.31	<0.01	<0.05	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_SW048_230610**	**Normal**	**EP2307676**	<0.02	<0.02	0.13	<0.02	0.26	<0.02	<0.1	0.03	0.04	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW048**	**12/06/2023**	**0967_SW048_230612**	**Normal**	**EP2307718**	0.03	0.02	0.21	<0.02	0.43	<0.02	<0.1	0.04	0.07	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW048**	**13/06/2023**	**0967_SW048_230613**	**Normal**	**EP2307806**	0.03	0.02	0.21	<0.02	0.39	<0.02	<0.1	0.04	0.08	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**9/06/2023**	**0967_SW049_230609**	**Normal**	**EP2307634**	0.03	0.03	0.24	<0.02	0.56	<0.02	<0.1	0.04	0.07	<0.02	0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**10/06/2023**	**0967_SW049_230610**	**Normal**	**EP2307676**	0.03	0.02	0.21	<0.02	0.40	<0.02	<0.1	0.03	0.07	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**11/06/2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	0.03	0.02	0.22	<0.02	0.42	<0.02	<0.1	0.03	0.07	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**11/06/2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	0.02	<0.02	0.13	<0.02	0.28	<0.02	<0.1	0.03	0.04	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**12/06/2023**	**0967_SW049_230612**	**Normal**	**EP2307718**	0.03	0.02	0.19	<0.02	0.31	<0.02	<0.1	0.03	0.06	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_QC124_230613**	**Field Duplicate**	**EP2307806**	0.02	<0.02	0.15	<0.02	0.23	<0.02	<0.1	0.03	0.05	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_QC224_230613**	**Interlab Duplicate**	**999535**	0.02	0.01	0.12	<0.01	0.28	<0.01	<0.05	0.03	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_SW049_230613**	**Normal**	**EP2307806**	0.02	<0.02	0.14	<0.02	0.22	<0.02	<0.1	0.03	0.05	<0.02	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW055**	**9/06/2023**	**0967_SW055_230609**	**Normal**	**EP2307634**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW055**	**10/06/2023**	**0967_SW055_230610**	**Normal**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW055**	**11/06/2023**	**0967_SW055_230611**	**Normal**	**EP2307678**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW055**	**12/06/2023**	**0967_SW055_230612**	**Normal**	**EP2307715**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW055**	**13/06/2023**	**0967_SW055_230613**	**Normal**	**EP2307806**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW058**	**9/06/2023**	**0967_SW058_230609**	**Normal**	**EP2307634**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW058**	**10/06/2023**	**0967_SW058_230610**	**Normal**	**EP2307675**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW058**	**11/06/2023**	**0967_SW058_230611**	**Normal**	**EP2307678**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW058**	**12/06/2023**	**0967_SW058_230612**	**Normal**	**EP2307718**	<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW058**	**13/06/2023**	**0967_SW058_230613**	**Normal**	**EP2307806**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**9/06/2023**	**0967_SW060_230609**	**Normal**	**EP2307634**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**10/06/2023**	**0967_SW060_230610**	**Normal**	**EP2307675**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**11/06/2023**	**0967_SW060_230611**	**Normal**	**EP2307678**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_QC120_230612**	**Field Duplicate**	**EP2307718**	<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_QC220_230612**	**Interlab Duplicate**	**999535**	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_SW060_230612**	**Normal**	**EP2307718**	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - West Bullsbrook	**SW060**	**13/06/2023**	**0967_SW060_230613**	**Normal**	**EP2307806**	<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW066**	**9/06/2023**	**0967_SW066_230609**	**Normal**	**EP2307634**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW066**	**10/06/2023**	**0967_SW066_230610**	**Normal**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW066**	**11/06/2023**	**0967_SW066_230611**	**Normal**	**EP2307678**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW066**	**12/06/2023**	**0967_SW066_230612**	**Normal**	**EP2307718**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW066**	**13/06/2023**	**0967_SW066_230613**	**Normal**	**EP2307806**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_QC103_230609**	**Field Duplicate**	**EP2307634**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_QC203_230609**	**Interlab Duplicate**	**999535**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_SW067_230609**	**Normal**	**EP2307634**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

First Time detect of PFOA or PFHxS+PFOS

New exceedance of guideline value

Environmental Standards

HEPA, January

						PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics							Metals			
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (HSA Def List)	Sum of PFAS	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Acid E.balance	Sulphate as SO4-Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	0.01	0.01	1	0.01	1	1	1	1	1
PFAS NEMP 2020 Drinking Water													*0.07*													
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water													**2**													
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
Off-site - Ellen Brook	**SW022**	**9/06/2023**	**0967_SW022_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.61*	1.31	1.33	<1	62	4.88	4.38	115	5.38	19	15	8	4	66
Off-site - Ellen Brook	**SW022**	**10/06/2023**	**0967_SW022_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	1.22	1.25	<1	80	10.3	11.5	272	5.75	49	39	22	7	175
Off-site - Ellen Brook	**SW022**	**11/06/2023**	**0967_SW022_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.96*	2.14	2.18	<1	82	5.59	5.61	118	0.18	30	20	8	5	88
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_QC116_230612**	**Field Duplicate**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.29	1.32	<1	82	7.11	8.02	166	6.01	38	32	17	6	112
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_QC216_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.81*	1.38	1.42											
Off-site - Ellen Brook	**SW022**	**12/06/2023**	**0967_SW022_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.73*	1.32	1.35	<1	82	7.14	7.80	167	4.43	38	31	16	6	110
Off-site - Ellen Brook	**SW022**	**13/06/2023**	**0967_SW022_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.33	1.37	<1	92	8.96	9.79	220	4.42	44	36	22	7	138
Off-site - Ellen Brook	**SW025**	**9/06/2023**	**0967_SW025_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.19***	2.30	2.37	<1	33	1.47	1.38	23	3.13	8	6	2	2	20
Off-site - Ellen Brook	**SW025**	**10/06/2023**	**0967_SW025_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.59***	3.71	3.80	<1	38	1.80	1.94	28	3.79	12	12	3	2	24
Off-site - Ellen Brook	**SW025**	**11/06/2023**	**0967_SW025_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.90*	2.00	2.06	<1	29	1.32	1.16	22	6.38	6	5	1	2	18
Off-site - Ellen Brook	**SW025**	**12/06/2023**	**0967_SW025_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.84***	2.95	3.04	<1	40	1.74	1.89	26	4.13	10	11	3	2	24
Off-site - Ellen Brook	**SW025**	**13/06/2023**	**0967_SW025_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.98***	3.11	3.21	<1	42	1.85	2.07	27	5.63	12	12	3	2	27
Off-site - Ellen Brook	**SW028**	**9/06/2023**	**0967_SW028_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.44	0.44	<1	14	12.2	12.2	373	0.20	68	26	35	8	179
Off-site - Ellen Brook	**SW028**	**11/06/2023**	**0967_SW028_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.69*	0.75	0.75	<1	42	1.25	1.08	14	7.25	1	6	1	2	15
Off-site - Ellen Brook	**SW028**	**12/06/2023**	**0967_SW028_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.40*	0.45	0.48	<1	16	18.0	19.7	556	4.46	98	43	58	11	288
Off-site - Ellen Brook	**SW028**	**13/06/2023**	**0967_SW028_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.38*	0.44	0.46	<1	14	19.8	22.5	612	6.48	106	48	66	12	330
Off-site - Ki-it Monger Brook	**SW032**	**9/06/2023**	**0967_SW032_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.37*	0.40	0.40	<1	70	5.01	4.63	106	3.95	30	20	9	6	63
Off-site - Ki-it Monger Brook	**SW032**	**10/06/2023**	**0967_SW032_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.75*	0.85	0.87	<1	90	3.78	3.91	51	1.69	26	27	6	6	44
Off-site - Ki-it Monger Brook	**SW032**	**11/06/2023**	**0967_SW032_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.52*	0.57	0.57	<1	60	3.49	3.26	62	3.44	26	14	5	4	47
Off-site - Ki-it Monger Brook	**SW032**	**12/06/2023**	**0967_SW032_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.75	0.77	<1	86	4.25	4.45	69	2.32	28	18	6	9	65
Off-site - Ki-it Monger Brook	**SW032**	**13/06/2023**	**0967_SW032_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.94*	1.08	1.12	<1	101	4.12	4.43	56	3.61	25	20	6	11	61
Off-site - Ki-it Monger Brook	**SW034**	**9/06/2023**	**0967_SW034_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.90*	1.03	1.05	<1	71	4.10	3.78	78	4.07	23	18	7	5	50
Off-site - Ki-it Monger Brook	**SW034**	**10/06/2023**	**0967_SW034_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***9.49***	11.6	12.2	<1	76	2.56	2.76	26	3.68	15	24	4	4	26
Off-site - Ki-it Monger Brook	**SW034**	**11/06/2023**	**0967_SW034_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***11.3***	13.8	14.4	<1	53	1.52	1.26	14	9.21	3	9	1	3	15
Off-site - Ki-it Monger Brook	**SW034**	**12/06/2023**	**0967_SW034_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***13.0***	16.0	16.6	<1	72	2.36	2.59	24	4.58	12	21	4	5	25
Off-site - Ki-it Monger Brook	**SW034**	**13/06/2023**	**0967_SW034_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***7.88***	9.58	10.0	<1	84	2.73	3.10	27	6.29	14	26	5	5	29
Off-site - Ki-it Monger Brook	**SW036**	**9/06/2023**	**0967_SW036_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.02*	1.15	1.18	<1	65	3.46	3.15	65	4.81	16	14	6	5	42
Off-site - Ki-it Monger Brook	**SW036**	**10/06/2023**	**0967_SW036_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.18*	1.37	1.41	<1	69	3.92	3.85	68	0.91	30	18	6	6	53
Off-site - Ki-it Monger Brook	**SW036**	**11/06/2023**	**0967_SW036_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.22*	1.41	1.45	<1	74	4.05	3.85	69	2.52	30	18	6	6	53
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_QC118_230612**	**Field Duplicate**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.48***	3.01	3.16	<1	65	4.24	4.86	82	6.90	30	25	9	7	62
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_QC218_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***2.75***	3.2	3.36											
Off-site - Ki-it Monger Brook	**SW036**	**12/06/2023**	**0967_SW036_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.54***	3.06	3.21	<1	65	4.35	4.86	86	5.59	30	25	9	7	62
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_QC125_230613**	**Field Duplicate**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.67***	3.32	3.52	<1	68	4.13	4.12	77	0.23	29	16	8	7	57
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_QC225_230613**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***3.04***	3.67	3.87											
Off-site - Ki-it Monger Brook	**SW036**	**13/06/2023**	**0967_SW036_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.65***	3.26	3.43	<1	68	4.13	4.16	77	0.29	29	16	8	7	58
Off-site - Ellen Brook	**SW038**	**9/06/2023**	**0967_SW038_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.11*	1.28	1.31	<1	41	3.25	2.84	76	6.75	14	10	6	6	39
Off-site - Ellen Brook	**SW038**	**10/06/2023**	**0967_SW038_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.20*	1.39	1.43	<1	68	3.98	3.85	70	1.63	31	18	6	6	53
Off-site - Ellen Brook	**SW038**	**11/06/2023**	**0967_SW038_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.29*	1.48	1.52	<1	73	3.98	3.85	68	1.66	29	18	6	6	53
Off-site - Ellen Brook	**SW038**	**12/06/2023**	**0967_SW038_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.61***	3.17	3.30	<1	64	4.12	4.31	80	2.30	28	17	6	9	63
Off-site - Ellen Brook	**SW038**	**13/06/2023**	**0967_SW038_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.62***	3.28	3.46	<1	67	4.17	4.12	79	0.67	29	16	8	7	57
Off-site - Ellen Brook	**SW048**	**9/06/2023**	**0967_SW048_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	0.68	0.68	<1	45	8.73	8.59	231	0.79	63	20	20	8	132
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_QC108_230610**	**Field Duplicate**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.46	0.46											
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_QC208_230610**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.41*	0.48	0.49											
Off-site - Ellen Brook	**SW048**	**10/06/2023**	**0967_SW048_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.46	0.46	<1	44	17.1	20.2	495	8.27	108	33	40	14	342
Off-site - Ellen Brook	**SW048**	**12/06/2023**	**0967_SW048_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.79	0.81	<1	50	17.7	19.8	515	5.44	106	34	54	16	304
Off-site - Ellen Brook	**SW048**	**13/06/2023**	**0967_SW048_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.60*	0.76	0.78	<1	46	17.6	19.1	511	4.18	108	29	52	15	299
Off-site - Ellen Brook	**SW049**	**9/06/2023**	**0967_SW049_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	0.96	0.99	<1	41	7.05	6.97	173	0.57	65	18	19	8	99
Off-site - Ellen Brook	**SW049**	**10/06/2023**	**0967_SW049_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.61*	0.75	0.77	<1	40	7.60	8.33	190	4.64	69	20	19	8	128
Off-site - Ellen Brook	**SW049**	**11/06/2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.78	0.80	<1	43	7.62	8.16	188	3.45	70	20	18	8	126
Off-site - Ellen Brook	**SW049**	**11/06/2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.50	0.50	<1	47	17.3	19.8	501	6.72	107	33	38	14	337
Off-site - Ellen Brook	**SW049**	**12/06/2023**	**0967_SW049_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.63	0.65	<1	49	12.5	13.8	332	4.73	104	34	36	12	202
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_QC124_230613**	**Field Duplicate**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.38*	0.49	0.49	<1	43	18.8	20.5	539	4.43	130	40	53	16	316
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_QC224_230613**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.4*	0.49	0.5											
Off-site - Ellen Brook	**SW049**	**13/06/2023**	**0967_SW049_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.36*	0.46	0.46	<1	43	18.9	20.6	544	4.17	130	41	54	16	314
Off-site - West Bullsbrook	**SW055**	**9/06/2023**	**0967_SW055_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	34	6.15	6.15	146	0.03	65	25	12	24	76
Off-site - West Bullsbrook	**SW055**	**10/06/2023**	**0967_SW055_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	35	5.68	6.58	127	7.40	67	27	12	25	83
Off-site - West Bullsbrook	**SW055**	**11/06/2023**	**0967_SW055_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	37	6.02	6.66	137	5.05	68	28	12	26	83
Off-site - West Bullsbrook	**SW055**	**12/06/2023**	**0967_SW055_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	38	5.96	6.94	137	7.64	64	27	11	32	89
Off-site - West Bullsbrook	**SW055**	**13/06/2023**	**0967_SW055_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	34	6.03	6.41	141	3.04	66	26	13	22	80
Off-site - West Bullsbrook	**SW058**	**9/06/2023**	**0967_SW058_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	109	8.28	7.99	150	1.80	90	49	12	20	93
Off-site - West Bullsbrook	**SW058**	**10/06/2023**	**0967_SW058_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	100	6.00	6.66	108	5.16	46	53	11	16	62
Off-site - West Bullsbrook	**SW058**	**11/06/2023**	**0967_SW058_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	97	5.52	5.58	96	0.52	42	40	8	14	59
Off-site - West Bullsbrook	**SW058**	**12/06/2023**	**0967_SW058_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	104	6.00	7.01	111	7.77	38	54	13	13	67
Off-site - West Bullsbrook	**SW058**	**13/06/2023**	**0967_SW058_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	101	5.90	6.00	105	0.92	44	42	11	12	62
Off-site - West Bullsbrook	**SW060**	**9/06/2023**	**0967_SW060_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	111	8.35	8.13	151	1.36	90	50	12	20	95
Off-site - West Bullsbrook	**SW060**	**10/06/2023**	**0967_SW060_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	105	6.46	7.14	112	5.00	58	54	10	16	74
Off-site - West Bullsbrook	**SW060**	**11/06/2023**	**0967_SW060_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	94	5.39	5.54	95	1.32	40	40	8	14	58
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_QC120_230612**	**Field Duplicate**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	104	6.15	7.05	117	6.82	37	53	13	13	69
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_QC220_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1											
Off-site - West Bullsbrook	**SW060**	**12/06/2023**	**0967_SW060_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	103	6.07	7.09	115	7.74	37	53	13	13	70
Off-site - West Bullsbrook	**SW060**	**13/06/2023**	**0967_SW060_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	103	5.94	6.25	106	2.51	43	43	12	13	64
Off-site - Twin Swamps Nature Reserve	**SW066**	**9/06/2023**	**0967_SW066_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	89	7.84	7.72	190	0.78	34	27	18	6	109
Off-site - Twin Swamps Nature Reserve	**SW066**	**10/06/2023**	**0967_SW066_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	94	7.34	7.98	168	4.14	35	31	15	6	116
Off-site - Twin Swamps Nature Reserve	**SW066**	**11/06/2023**	**0967_SW066_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	101	7.30	7.88	163	3.80	33	29	15	6	116
Off-site - Twin Swamps Nature Reserve	**SW066**	**12/06/2023**	**0967_SW066_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	101	7.59	8.34	174	4.72	32	29	16	9	123
Off-site - Twin Swamps Nature Reserve	**SW066**	**13/06/2023**	**0967_SW066_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	97	7.55	7.86	174	2.00	34	29	19	6	108
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_QC103_230609**	**Field Duplicate**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	47	8.02	8.02	195	<10	76	29	18	7	113
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_QC203_230609**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1											
Off-site - Twin Swamps Nature Reserve	**SW067**	**9/06/2023**	**0967_SW067_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	46	7.52	7.85	180	2.15	73	28	17	7	112

Notes:

First Time detect of PFOA or PFHxS+PFOS

New exceedance of guideline value

Environmental Standards

HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

						Sample Preparation	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Moisture Content	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.1	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0005
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																										
	SD002	**9/06/2023**	**0967_SD002_230609**	**Normal**	**EP2307642**	27.5	0.0004	0.0003	0.0022	0.0003	0.0252	0.0006	<0.001	<0.0002	0.0003	<0.0002	0.0003	0.0003	0.0010	0.0029	0.0044	0.0027	0.0023	<0.0005	<0.0005	0.0019	0.0020
	SD002	**10/06/2023**	**0967_SD002_230610**	**Normal**	**EP2307674**	23.5	<0.0002	<0.0002	0.0004	<0.0002	0.0135	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0005	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	0.0009	<0.0005
	SD002	**11/06/2023**	**0967_QC109_230611**	**Field Duplicate**	**EP2307679**	8.9	0.0003	0.0002	0.0022	0.0003	0.0294	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD002	**11/06/2023**	**0967_QC209_230611**	**Interlab Duplicate**	**999535**	12	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD002	**11/06/2023**	**0967_SD002_230611**	**Normal**	**EP2307679**	14.9	<0.0002	<0.0002	0.0012	<0.0002	0.0134	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD002	**12/06/2023**	**0967_SD002_230612**	**Normal**	**EP2307716**	21.8	<0.0002	<0.0002	0.0010	<0.0002	0.0188	0.0004	<0.001	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.0008	0.0015	0.0020	0.0007	0.0007	<0.0005	<0.0005	0.0022	0.0011
	SD002	**13/06/2023**	**0967_SD002_230613**	**Normal**	**EP2307799**	23.1	<0.0002	<0.0002	0.0002	<0.0002	0.0050	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	0.0016	<0.0005
	SD007	**9/06/2023**	**0967_SD007_230609**	**Normal**	**EP2307642**	52.2	0.0109	0.0159	0.218	0.0705	8.56	0.254	0.004	0.0056	0.0237	0.0048	0.0228	0.0021	0.0036	0.0074	0.0209	0.0104	0.0096	<0.0005	0.0048	0.0172	<0.0005
	SD007	**10/06/2023**	**0967_SD007_230610**	**Normal**	**EP2307674**	39.4	0.0028	0.0048	0.0685	0.0136	2.11	0.0234	0.001	0.0018	0.0060	0.0012	0.0053	0.0008	0.0012	0.0015	0.0026	0.0011	0.0010	<0.0005	0.0008	0.0028	<0.0005
	SD007	**11/06/2023**	**0967_SD007_230611**	**Normal**	**EP2307679**	56.4	0.0030	0.0040	0.0686	0.0132	2.17	0.192	<0.001	0.0016	0.0083	0.0012	0.0056	0.0006	0.0015	0.0021	0.0135	0.0107	0.0108	<0.0005	0.0008	0.0068	0.0021
	SD007	**12/06/2023**	**0967_SD007_230612**	**Normal**	**EP2307716**	28.5	0.0038	0.0077	0.0814	0.0198	2.81	0.0862	0.002	0.0027	0.0088	0.0015	0.0078	0.0005	0.0013	0.0022	0.0115	0.0055	0.0034	<0.0005	0.0015	0.0080	0.0024
	SD007	**13/06/2023**	**0967_SD007_230613**	**Normal**	**EP2307799**	46.8	0.0064	0.0086	0.128	0.0306	5.28	0.160	0.003	0.0040	0.0193	0.0026	0.0133	0.0009	0.0020	0.0043	0.0141	0.0058	0.0044	<0.0005	0.0021	0.0083	0.0006
	SD015	**9/06/2023**	**0967_SD015_230609**	**Normal**	**EP2307642**	31.8	0.0003	0.0003	0.0056	0.0004	0.0933	0.0031	<0.001	0.0003	0.0009	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD015	**10/06/2023**	**0967_SD015_230610**	**Normal**	**EP2307674**	17.4	<0.0002	<0.0002	0.0005	<0.0002	0.0116	0.0007	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD015	**11/06/2023**	**0967_SD015_230611**	**Normal**	**EP2307679**	22.8	0.0003	0.0003	0.0057	0.0004	0.0655	0.0019	<0.001	0.0004	0.0009	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD015	**12/06/2023**	**0967_SD015_230612**	**Normal**	**EP2307716**	17.5	0.0002	0.0003	0.0024	0.0002	0.0268	0.0004	<0.001	0.0003	0.0008	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD015	**13/06/2023**	**0967_SD015_230613**	**Normal**	**EP2307799**	24.5	0.0005	0.0006	0.0085	0.0008	0.114	0.0057	<0.001	0.0005	0.0014	<0.0002	0.0009	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**9/06/2023**	**0967_SD020_230609**	**Normal**	**EP2307642**	46.7	<0.0002	<0.0002	0.0018	0.0004	0.0672	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**10/06/2023**	**0967_QC106_230610**	**Field Duplicate**	**EP2307674**	24.0	<0.0002	<0.0002	0.0006	<0.0002	0.0136	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**10/06/2023**	**0967_QC206_230610**	**Interlab Duplicate**	**999535**	27	<0.005	<0.005	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD020	**10/06/2023**	**0967_SD020_230610**	**Normal**	**EP2307674**	25.4	<0.0002	<0.0002	0.0004	<0.0002	0.0234	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**11/06/2023**	**0967_QC111_230611**	**Field Duplicate**	**EP2307679**	21.2	<0.0002	<0.0002	0.0013	<0.0002	0.0102	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**11/06/2023**	**0967_QC211_230611**	**Interlab Duplicate**	**999535**	20	<0.005	<0.005	<0.005	<0.005	0.0092	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD020	**11/06/2023**	**0967_SD020_230611**	**Normal**	**EP2307679**	22.6	<0.0002	<0.0002	0.0013	<0.0002	0.0119	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**12/06/2023**	**0967_SD020_230612**	**Normal**	**EP2307716**	19.2	<0.0002	<0.0002	0.0006	<0.0002	0.0056	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD020	**13/06/2023**	**0967_SD020_230613**	**Normal**	**EP2307799**	19.9	<0.0002	<0.0002	0.0009	<0.0002	0.0066	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD022	**9/06/2023**	**0967_SD022_230609**	**Normal**	**EP2307642**	13.8	<0.0002	<0.0002	0.0004	<0.0002	0.0029	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD022	**10/06/2023**	**0967_SD022_230610**	**Normal**	**EP2307674**	20.8	<0.0002	<0.0002	0.0007	<0.0002	0.0054	<0.0002	<0.001	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD022	**11/06/2023**	**0967_SD022_230611**	**Normal**	**EP2307679**	15.6	0.0002	0.0004	0.0033	<0.0002	0.0272	0.0004	<0.001	0.0004	0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD022	**12/06/2023**	**0967_SD022_230612**	**Normal**	**EP2307716**	29.3	<0.0002	<0.0002	0.0011	<0.0002	0.0067	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0008	<0.0005	<0.0005	<0.0005
	SD022	**13/06/2023**	**0967_SD022_230613**	**Normal**	**EP2307799**	22.6	<0.0002	<0.0002	0.0004	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**9/06/2023**	**0967_SD025_230609**	**Normal**	**EP2307642**	30.2	<0.0002	<0.0002	0.0064	0.0009	0.0936	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**10/06/2023**	**0967_SD025_230610**	**Normal**	**EP2307674**	42.4	<0.0002	<0.0002	0.0027	0.0003	0.0553	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**11/06/2023**	**0967_SD025_230611**	**Normal**	**EP2307679**	33.1	<0.0002	<0.0002	0.0011	<0.0002	0.0308	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**12/06/2023**	**0967_QC115_230612**	**Field Duplicate**	**EP2307716**	33.3	<0.0002	<0.0002	0.0032	0.0003	0.0399	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**12/06/2023**	**0967_QC215_230612**	**Interlab Duplicate**	**999535**	25	<0.005	<0.005	<0.005	<0.005	0.041	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD025	**12/06/2023**	**0967_SD025_230612**	**Normal**	**EP2307716**	41.7	<0.0002	0.0003	0.0047	0.0005	0.0672	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**13/06/2023**	**0967_QC122_230613**	**Field Duplicate**	**EP2307799**	38.3	0.0002	0.0004	0.0096	0.0010	0.0541	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD025	**13/06/2023**	**0967_QC222_230613**	**Interlab Duplicate**	**999535**	33	<0.005	<0.005	<0.005	<0.005	0.075	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD025	**13/06/2023**	**0967_SD025_230613**	**Normal**	**EP2307799**	57.4	<0.0002	0.0003	0.0056	0.0007	0.147	0.0005	<0.001	0.0004	0.0010	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD028	**9/06/2023**	**0967_SD028_230609**	**Normal**	**EP2307642**	35.5	<0.0002	<0.0002	0.0012	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD028	**10/06/2023**	**0967_SD028_230610**	**Normal**	**EP2307674**	20.5	<0.0002	<0.0002	0.0004	<0.0002	0.0078	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD028	**11/06/2023**	**0967_SD028_230611**	**Normal**	**EP2307679**	15.3	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD028	**12/06/2023**	**0967_SD028_230612**	**Normal**	**EP2307716**	20.0	<0.0002	<0.0002	0.0004	<0.0002	0.0021	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD028	**13/06/2023**	**0967_SD028_230613**	**Normal**	**EP2307799**	21.4	<0.0002	<0.0002	0.0008	<0.0002	0.0022	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**9/06/2023**	**0967_QC102_230609**	**Field Duplicate**	**EP2307642**	18.3	<0.0002	<0.0002	0.0004	<0.0002	0.0072	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**9/06/2023**	**0967_QC202_230609**	**Interlab Duplicate**	**999535**	15	<0.005	<0.005	<0.005	<0.005	0.0069	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD032	**9/06/2023**	**0967_SD032_230609**	**Normal**	**EP2307642**	16.3	<0.0002	<0.0002	0.0009	<0.0002	0.0089	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**10/06/2023**	**0967_SD032_230610**	**Normal**	**EP2307674**	40.0	<0.0002	<0.0002	0.0003	<0.0002	0.0059	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**11/06/2023**	**0967_SD032_230611**	**Normal**	**EP2307679**	17.5	<0.0002	<0.0002	0.0006	<0.0002	0.0212	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**12/06/2023**	**0967_QC114_230612**	**Field Duplicate**	**EP2307716**	30.4	<0.0002	<0.0002	0.0014	<0.0002	0.0224	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**12/06/2023**	**0967_QC214_230612**	**Interlab Duplicate**	**999535**	33	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD032	**12/06/2023**	**0967_SD032_230612**	**Normal**	**EP2307716**	37.2	<0.0002	0.0002	0.0014	<0.0002	0.0305	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD032	**13/06/2023**	**0967_SD032_230613**	**Normal**	**EP2307799**	33.5	0.0002	0.0003	0.0052	0.0006	0.0454	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD034	**9/06/2023**	**0967_SD034_230609**	**Normal**	**EP2307642**	15.9	<0.0002	<0.0002	0.0010	<0.0002	0.0234	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD034	**10/06/2023**	**0967_SD034_230610**	**Normal**	**EP2307674**	9.0	<0.0002	<0.0002	<0.0002	<0.0002	0.0069	0.0006	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD034	**11/06/2023**	**0967_SD034_230611**	**Normal**	**EP2307679**	33.6	<0.0002	<0.0002	0.0037	<0.0002	0.0314	0.0012	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD034	**12/06/2023**	**0967_SD034_230612**	**Normal**	**EP2307716**	14.4	<0.0002	<0.0002	0.0018	<0.0002	0.0338	0.0011	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD034	**13/06/2023**	**0967_SD034_230613**	**Normal**	**EP2307799**	3.9	<0.0002	<0.0002	<0.0002	<0.0002	0.0044	0.0012	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**9/06/2023**	**0967_SD036_230609**	**Normal**	**EP2307642**	27.8	0.0002	0.0003	0.0023	0.0004	0.0798	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**10/06/2023**	**0967_SD036_230610**	**Normal**	**EP2307677**	34.9	<0.0002	<0.0002	0.0004	<0.0002	0.0060	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**11/06/2023**	**0967_SD036_230611**	**Normal**	**EP2307679**	21.2	<0.0002	<0.0002	0.0002	<0.0002	0.0063	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**12/06/2023**	**0967_QC117_230612**	**Field Duplicate**	**EP2307719**	25.6	<0.0002	<0.0002	0.0004	<0.0002	0.0051	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**12/06/2023**	**0967_QC217_230612**	**Interlab Duplicate**	**999535**	32	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD036	**12/06/2023**	**0967_SD036_230612**	**Normal**	**EP2307719**	34.1	<0.0002	<0.0002	0.0006	<0.0002	0.0080	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**13/06/2023**	**0967_QC126_230613**	**Field Duplicate**	**EP2307805**	26.3	<0.0002	<0.0002	0.0004	<0.0002	0.0071	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD036	**13/06/2023**	**0967_QC226_230613**	**Interlab Duplicate**	**999535**	31	<0.005	<0.005	<0.005	<0.005	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD036	**13/06/2023**	**0967_SD036_230613**	**Normal**	**EP2307805**	25.1	<0.0002	<0.0002	0.0002	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**9/06/2023**	**0967_SD049_230609**	**Normal**	**EP2307633**	20.3	<0.0002	<0.0002	0.0002	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**10/06/2023**	**0967_SD049_230610**	**Normal**	**EP2307677**	21.9	<0.0002	<0.0002	<0.0002	<0.0002	0.0027	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**11/06/2023**	**0967_SD049_230611**	**Normal**	**EP2307679**	17.2	<0.0002	<0.0002	0.0014	<0.0002	0.0062	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**12/06/2023**	**0967_SD049_230612**	**Normal**	**EP2307719**	22.1	<0.0002	<0.0002	0.0003	<0.0002	0.0041	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**13/06/2023**	**0967_QC123_230613**	**Field Duplicate**	**EP2307805**	30.3	<0.0002	<0.0002	0.0002	<0.0002	0.0021	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD049	**13/06/2023**	**0967_QC223_230613**	**Interlab Duplicate**	**999535**	18	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
	SD049	**13/06/2023**	**0967_SD049_230613**	**Normal**	**EP2307805**	28.9	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD055	**9/06/2023**	**0967_SD055_230609**	**Normal**	**EP2307633**	66.4	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	SD055	**10/06/2023**	**0967_SD055_230610**	**Normal**	**EP2307677**	14.9	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0002	0.0002
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**										
	SD002	9/06/2023	0967_SD002_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0274	0.0303	0.0471
	SD002	10/06/2023	0967_SD002_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0139	0.0148	0.0160
	SD002	11/06/2023	0967_QC109_230611	Field Duplicate	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0316	0.0319	0.0324
	SD002	11/06/2023	0967_QC209_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.022	0.022	<0.05
	SD002	11/06/2023	0967_SD002_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0146	0.0146	0.0146
	SD002	12/06/2023	0967_SD002_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0198	0.0225	0.0297
	SD002	13/06/2023	0967_SD002_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0052	0.0068	0.0075
	SD007	9/06/2023	0967_SD007_230609	Normal	EP2307642	0.244	0.0049	0.0002	<0.0005	<0.0005	0.0018	<0.0005	8.78	8.87	9.52
	SD007	10/06/2023	0967_SD007_230610	Normal	EP2307674	0.0257	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	2.18	2.20	2.28
	SD007	11/06/2023	0967_SD007_230611	Normal	EP2307679	0.0651	0.0010	<0.0002	<0.0005	<0.0005	0.0007	<0.0005	2.24	2.26	2.58
	SD007	12/06/2023	0967_SD007_230612	Normal	EP2307716	0.113	0.0039	0.0007	<0.0005	<0.0005	0.0009	<0.0005	2.89	2.93	3.19
	SD007	13/06/2023	0967_SD007_230613	Normal	EP2307799	0.194	0.0033	0.0002	<0.0005	<0.0005	0.0009	<0.0005	5.41	5.47	5.90
	SD015	9/06/2023	0967_SD015_230609	Normal	EP2307642	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0989	0.101	0.105
	SD015	10/06/2023	0967_SD015_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0121	0.0121	0.0128
	SD015	11/06/2023	0967_SD015_230611	Normal	EP2307679	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0712	0.0733	0.0768
	SD015	12/06/2023	0967_SD015_230612	Normal	EP2307716	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0292	0.0308	0.0319
	SD015	13/06/2023	0967_SD015_230613	Normal	EP2307799	0.0024	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.122	0.126	0.136
	SD020	9/06/2023	0967_SD020_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0690	0.0698	0.0702
	SD020	10/06/2023	0967_QC106_230610	Field Duplicate	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0142	0.0142	0.0142
	SD020	10/06/2023	0967_QC206_230610	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.02	0.02	<0.05
	SD020	10/06/2023	0967_SD020_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0238	0.0238	0.0238
	SD020	11/06/2023	0967_QC111_230611	Field Duplicate	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0115	0.0120	0.0120
	SD020	11/06/2023	0967_QC211_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0092	0.01	<0.05
	SD020	11/06/2023	0967_SD020_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0132	0.0136	0.0136
	SD020	12/06/2023	0967_SD020_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0062	0.0062	0.0062
	SD020	13/06/2023	0967_SD020_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0075	0.0078	0.0078
	SD022	9/06/2023	0967_SD022_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0033	0.0033	0.0033
	SD022	10/06/2023	0967_SD022_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0063	0.0063
	SD022	11/06/2023	0967_SD022_230611	Normal	EP2307679	<0.0002	<0.0005	0.0002	<0.0005	<0.0005	0.0011	<0.0005	0.0305	0.0318	0.0339
	SD022	12/06/2023	0967_SD022_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0078	0.0094	0.0094
	SD022	13/06/2023	0967_SD022_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0028	0.0028	0.0028
	SD025	9/06/2023	0967_SD025_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.100	0.101	0.102
	SD025	10/06/2023	0967_SD025_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0580	0.0580	0.0583
	SD025	11/06/2023	0967_SD025_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0319	0.0319	0.0319
	SD025	12/06/2023	0967_QC115_230612	Field Duplicate	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0431	0.0434	0.0437
	SD025	12/06/2023	0967_QC215_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.041	0.041	<0.05
	SD025	12/06/2023	0967_SD025_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0719	0.0726	0.0734
	SD025	13/06/2023	0967_QC122_230613	Field Duplicate	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0637	0.0648	0.0662
	SD025	13/06/2023	0967_QC222_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.075	0.075	0.075
	SD025	13/06/2023	0967_SD025_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.153	0.154	0.156
	SD028	9/06/2023	0967_SD028_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0064
	SD028	10/06/2023	0967_SD028_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0082	0.0082	0.0082
	SD028	11/06/2023	0967_SD028_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
	SD028	12/06/2023	0967_SD028_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0025	0.0025
	SD028	13/06/2023	0967_SD028_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
	SD032	9/06/2023	0967_QC102_230609	Field Duplicate	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0076	0.0076	0.0076
	SD032	9/06/2023	0967_QC202_230609	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0069	0.01	<0.05
	SD032	9/06/2023	0967_SD032_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0098	0.0103	0.0103
	SD032	10/06/2023	0967_SD032_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0062	0.0062	0.0062
	SD032	11/06/2023	0967_SD032_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0218	0.0218	0.0218
	SD032	12/06/2023	0967_QC114_230612	Field Duplicate	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0238	0.0238	0.0238
	SD032	12/06/2023	0967_QC214_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.031	0.031	<0.05
	SD032	12/06/2023	0967_SD032_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0319	0.0319	0.0321
	SD032	13/06/2023	0967_SD032_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0506	0.0518	0.0527
	SD034	9/06/2023	0967_SD034_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0244	0.0247	0.0247
	SD034	10/06/2023	0967_SD034_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0069	0.0069	0.0075
	SD034	11/06/2023	0967_SD034_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0351	0.0355	0.0367
	SD034	12/06/2023	0967_SD034_230612	Normal	EP2307716	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0356	0.0358	0.0372
	SD034	13/06/2023	0967_SD034_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0044	0.0044	0.0056
	SD036	9/06/2023	0967_SD036_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0821	0.0832	0.0839
	SD036	10/06/2023	0967_SD036_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0064
	SD036	11/06/2023	0967_SD036_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0065	0.0065	0.0065
	SD036	12/06/2023	0967_QC117_230612	Field Duplicate	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0003	<0.0005	0.0055	0.0055	0.0055
	SD036	12/06/2023	0967_QC217_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.022	0.022	<0.05
	SD036	12/06/2023	0967_SD036_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0086	0.0086	0.0088
	SD036	13/06/2023	0967_QC126_230613	Field Duplicate	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0075	0.0075	0.0075
	SD036	13/06/2023	0967_QC226_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.019	0.019	<0.05
	SD036	13/06/2023	0967_SD036_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0026	0.0026
	SD049	9/06/2023	0967_SD049_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0026	0.0026
	SD049	10/06/2023	0967_SD049_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0027	0.0027	0.0027
	SD049	11/06/2023	0967_SD049_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0076	0.0076	0.0076
	SD049	12/06/2023	0967_SD049_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0044	0.0044	0.0044
	SD049	13/06/2023	0967_QC123_230613	Field Duplicate	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0023	0.0023	0.0023
	SD049	13/06/2023	0967_QC223_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
	SD049	13/06/2023	0967_SD049_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
	SD055	9/06/2023	0967_SD055_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0011	0.0011	0.0011
	SD055	10/06/2023	0967_SD055_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
	SD055	11/06/2023	0967_SD055_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
	SD055	12/06/2023	0967_SD055_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
	SD055	13/06/2023	0967_SD055_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	0.0015	0.0015
	SD058	9/06/2023	0967_SD058_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0031	0.0031	0.0031
	SD058	10/06/2023	0967_SD058_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
	SD058	11/06/2023	0967_SD058_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
	SD058	12/06/2023	0967_SD058_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
	SD058	13/06/2023	0967_SD058_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
	SD060	9/06/2023	0967_SD060_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0054	0.0054
	SD060	10/06/2023	0967_SD060_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0010	0.0010	0.0010
	SD060	11/06/2023	0967_SD060_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
	SD060	12/06/2023	0967_QC119_230612	Field Duplicate	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
	SD060	12/06/2023	0967_QC219_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
	SD060	12/06/2023	0967_SD060_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
	SD060	13/06/2023	0967_SD060_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0016	0.0016
	SD061	9/06/2023	0967_SD061_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD061	10/06/2023	0967_SD061_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD061	11/06/2023	0967_SD061_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD061	12/06/2023	0967_SD061_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
	SD061	13/06/2023	0967_SD061_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD062	9/06/2023	0967_QC104_230609	Field Duplicate	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD062	9/06/2023	0967_QC204_230609	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
	SD062	9/06/2023	0967_SD062_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD062	10/06/2023	0967_QC107_230610	Field Duplicate	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
	SD062	10/06/2023	0967_QC207_230610	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
	SD062	10/06/2023	0967_SD062_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD062	11/06/2023	0967_SD062_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	<0.0002	<0.0002
	SD062	12/06/2023	0967_SD062_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	0.0005	0.0005
	SD062	13/06/2023	0967_SD062_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0003	0.0003	0.0003

Notes:

First Time detect of PFOA or PFHxS+PFOS

New exceedance of guideline value

Environmental Standards

HEPA, January 2020, PFAS NEMP 2020 Drinking Water

HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%

HEPA, January 2020, PFAS NEMP 2020 Recreational Water

				PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
				Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.02	0.02	0.01	0.02	0.01	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.05	0.05	0.05	0.05
Date	**Field ID**	**Sample Type**	**Lab Report Number**																						
9/06/2023	**0967_QC301_230609**	**Rinsate**	**EP2307643**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
9/06/2023	**0967_QC302_230609**	**Rinsate**	**EP2307643**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
9/06/2023	**0967_QC401_230609**	**Field Blanks**	**EP2307643**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
9/06/2023	**0967_QC402_230609**	**Field Blanks**	**EP2307643**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
10/06/2023	**0967_QC301_230610**	**Rinsate**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
10/06/2023	**0967_QC302_230610**	**Rinsate**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
10/06/2023	**0967_QC401_230610**	**Field Blanks**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
10/06/2023	**0967_QC402_230610**	**Field Blanks**	**EP2307676**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
11/06/2023	**0967_QC300_230611**	**Rinsate**	**EP2307678**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
11/06/2023	**0967_QC400_230611**	**Field Blanks**	**EP2307678**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
12/06/2023	**0967_QC301_230612**	**Rinsate**	**EP2307718**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
12/06/2023	**0967_QC302_230612**	**Rinsate**	**EP2307718**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
12/06/2023	**0967_QC401_230612**	**Field Blanks**	**EP2307718**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
12/06/2023	**0967_QC402_230612**	**Field Blanks**	**EP2307718**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
13/06/2023	**0967_QC301_230613**	**Rinsate**	**EP2307798**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
13/06/2023	**0967_QC302_230613**	**Rinsate**	**EP2307798**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
13/06/2023	**0967_QC401_230613**	**Field Blanks**	**EP2307798**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
13/06/2023	**0967_QC402_230613**	**Field Blanks**	**EP2307798**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05

				PFAS		PFAS - Perfluoroalkyl Sulfonamides								PFAS		
				Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.02	0.02	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01
Date	**Field ID**	**Sample Type**	**Lab Report Number**												
9/06/2023	**0967_QC301_230609**	**Rinsate**	**EP2307643**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
9/06/2023	**0967_QC302_230609**	**Rinsate**	**EP2307643**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
9/06/2023	**0967_QC401_230609**	**Field Blanks**	**EP2307643**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
9/06/2023	**0967_QC402_230609**	**Field Blanks**	**EP2307643**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
10/06/2023	**0967_QC301_230610**	**Rinsate**	**EP2307676**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
10/06/2023	**0967_QC302_230610**	**Rinsate**	**EP2307676**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
10/06/2023	**0967_QC401_230610**	**Field Blanks**	**EP2307676**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
10/06/2023	**0967_QC402_230610**	**Field Blanks**	**EP2307676**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
11/06/2023	**0967_QC300_230611**	**Rinsate**	**EP2307678**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
11/06/2023	**0967_QC400_230611**	**Field Blanks**	**EP2307678**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
12/06/2023	**0967_QC301_230612**	**Rinsate**	**EP2307718**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
12/06/2023	**0967_QC302_230612**	**Rinsate**	**EP2307718**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
12/06/2023	**0967_QC401_230612**	**Field Blanks**	**EP2307718**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
12/06/2023	**0967_QC402_230612**	**Field Blanks**	**EP2307718**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/06/2023	**0967_QC301_230613**	**Rinsate**	**EP2307798**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/06/2023	**0967_QC302_230613**	**Rinsate**	**EP2307798**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/06/2023	**0967_QC401_230613**	**Field Blanks**	**EP2307798**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/06/2023	**0967_QC402_230613**	**Field Blanks**	**EP2307798**	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

	Date		09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023	
	Field ID		0967_SW020_230609	0967_QC101_230609		0967_SW020_230609	0967_QC201_230609		0967_SW067_230609	0967_QC103_230609		0967_SW067_230609	0967_QC203_230609	
	Matrix Type		Water	Water		Water	Water		Water	Water		Water	Water	
	Lab Report Number		EP2307643	EP2307643	RPD	EP2307643	999535	RPD	EP2307634	EP2307634	RPD	EP2307634	999535	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	0.03	0.03	0	0.03	0.02	40	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	0.04	0.02	67	0.04	0.03	29	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.25	0.30	18	0.25	0.24	4	<0.01	<0.01	0	<0.01	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.70	0.70	0	0.70	0.81	15	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanesulfonic acid (PFNS)	µg/L	0.01					<0.01						<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.06	0.07	15	0.06	0.06	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.02	0.02	0	0.02	0.01	67	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	0.95	1.00	5	0.95	1.05	10	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFAS (WA DER List)	µg/L	0.01	1.06	1.12	6	1.06	1.16	9	<0.01	<0.01	0	<0.01	<0.05	0
Sum of PFAS	µg/L	0.01	1.10	1.14	4	1.10	1.21	10	<0.01	<0.01	0	<0.01	<0.1	0

**RPDs have only been considered where a concentration is greater than 1 times the LOR.
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each LOR multiplier range are: No Limit (1 - 10 x LOR); 50 (10 - 20 x LOR); 20 (> 20 x LOR))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

	Unit	10 Jun 2023 0967_SW020_230610 Water EP2307675	10 Jun 2023 0967_QC105_230610 Water EP2307675	RPD	10 Jun 2023 0967_SW020_230610 Water EP2307675	10 Jun 2023 0967_QC205_230610 Water 999535	RPD	10 Jun 2023 0967_SW048_230610 Water EP2307676	10 Jun 2023 0967_QC108_230610 Water EP2307676	RPD	10 Jun 2023 0967_SW048_230610 Water EP2307676	10 Jun 2023 0967_QC208_230610 Water 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids													
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.04	0.04	0	0.04	0.03	29	<0.02	<0.02	0	<0.02	0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.05	0.04	22	0.05	0.04	22	<0.02	<0.02	0	<0.02	0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.38	0.38	0	0.38	0.36	5	0.13	0.13	0	0.13	0.10	26
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	<0.02	0.02	0	<0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.69	0.68	1	0.69	1.0	**37**	0.26	0.26	0	0.26	0.31	18
Perfluorononanesulfonic acid (PFNS)	µg/L					<0.01						<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids													
Perfluorobutanoic acid (PFBA)	µg/L	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.02	0	0.02	0.02	0	0.03	0.03	0	0.03	0.03	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	0.08	0	0.08	0.06	29	0.04	0.04	0	0.04	0.03	29
Perfluoroheptanoic acid (PFHpA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.02	0.02	0	0.02	0.02	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids													
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides													
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS													
Sum of PFHxS and PFOS	µg/L	1.07	1.06	1	1.07	1.36	**24**	0.39	0.39	0	0.39	0.41	5
Sum of PFAS (WA DER List)	µg/L	1.23	1.22	1	1.23	1.49	19	0.46	0.46	0	0.46	0.48	4
Sum of PFAS	µg/L	1.28	1.28	0	1.28	1.56	20	0.46	0.46	0	0.46	0.49	6

*RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

	Unit	11 Jun 2023 0967_SW007_230611 Water EP2307678	11 Jun 2023 0967_QC110_230611 Water EP2307678	RPD	11 Jun 2023 0967_SW007_230611 Water EP2307678	11 Jun 2023 0967_QC210_230611 Water 999535	RPD	11 Jun 2023 0967_SW010_230611 Water EP2307678	11 Jun 2023 0967_QC112_230611 Water EP2307678	RPD	11 Jun 2023 0967_SW010_230611 Water EP2307678	11 Jun 2023 0967_QC212_230611 Water 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids													
Perfluorobutane sulfonic acid (PFBS)	µg/L	3.17	3.07	3	3.17	4.2	**28**	2.62	2.44	7	2.62	3.2	20
Perfluoropentane sulfonic acid (PFPeS)	µg/L	3.12	3.02	3	3.12	5.1	**48**	2.36	2.26	4	2.36	2.8	17
Perfluorohexane sulfonic acid (PFHxS)	µg/L	25.4	29.6	15	25.4	55	**74**	20.5	21.5	5	20.5	27	**27**
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	4.03	4.19	4	4.03	5.0	**21**	1.66	1.42	16	1.66	1.2	**32**
Perfluorooctane sulfonic acid (PFOS)	µg/L	126	129	2	126	330	**89**	44.2	50.2	13	44.2	90	**68**
Perfluorononanesulfonic acid (PFNS)	µg/L					2.6						0.37	
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.85	1.40	**49**	0.85	0.86	1	0.12	0.21	**55**	0.12	<0.1	18
PFAS - Perfluoroalkyl Carboxylic Acids													
Perfluorobutanoic acid (PFBA)	µg/L	1.8	1.8	0	1.8	2.0	11	1.8	1.8	0	1.8	1.6	12
Perfluoropentanoic acid (PFPeA)	µg/L	2.35	2.34	0	2.35	3.4	**37**	1.73	1.66	4	1.73	2.3	**28**
Perfluorohexanoic acid (PFHxA)	µg/L	7.27	8.28	13	7.27	15	**69**	6.31	7.51	17	6.31	8.0	**24**
Perfluoroheptanoic acid (PFHpA)	µg/L	1.14	1.18	3	1.14	0.99	14	0.67	0.69	3	0.67	0.85	**24**
Perfluorooctanoic acid (PFOA)	µg/L	2.80	2.72	3	2.80	3.8	**30**	1.55	1.59	3	1.55	2.0	**25**
Perfluorononanoic acid (PFNA)	µg/L	0.07	0.07	0	0.07	0.07	0	0.05	0.05	0	0.05	0.05	0
Perfluorodecanoic acid (PFDA)	µg/L	0.03	0.03	0	0.03	<0.2	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.02	0.02	0	0.02	<0.01	67	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.02	0.03	40	0.02	<0.01	67	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids													
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.25	0.28	11	0.25	0.27	8	0.10	0.10	0	0.10	0.08	22
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.19	0.21	10	0.19	0.15	24	<0.05	<0.05	0	<0.05	0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides													
Perfluorooctane sulfonamide (FOSA)	µg/L	1.32	1.38	4	1.32	0.97	**31**	0.07	0.07	0	0.07	<0.05	33
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS													
Sum of PFHxS and PFOS	µg/L	151	159	5	151	385	**87**	64.7	71.7	10	64.7	117	**58**
Sum of PFAS (WA DER List)	µg/L	170	178	5	170	414.81	**84**	79.5	87.5	10	79.5	135.05	**52**
Sum of PFAS	µg/L	180	189	5	180	431.01	**82**	83.7	91.5	9	83.7	140.97	**51**

*RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

	Unit	12 Jun 2023 0967_SW020_230612 Water EP2307715	12 Jun 2023 0967_QC113_230612 Water EP2307715	RPD	12 Jun 2023 0967_SW020_230612 Water EP2307715	12 Jun 2023 0967_QC213_230612 Water 999535	RPD	12 Jun 2023 0967_SW022_230612 Water EP2307715	12 Jun 2023 0967_QC116_230612 Water EP2307715	RPD	12 Jun 2023 0967_SW022_230612 Water EP2307715	12 Jun 2023 0967_QC216_230612 Water 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids													
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.05	0.04	22	0.05	0.03	50	0.04	0.03	29	0.04	0.03	29
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.04	0.04	0	0.04	0.04	0	0.03	0.03	0	0.03	0.02	40
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.39	0.38	3	0.39	0.34	14	0.27	0.25	8	0.27	0.23	16
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	<0.02	0	0.02	0.02	0	<0.02	<0.02	0	<0.02	0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.70	0.62	12	0.70	0.91	**26**	0.46	0.46	0	0.46	0.58	**23**
Perfluorononanesulfonic acid (PFNS)	µg/L					<0.01						<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids													
Perfluorobutanoic acid (PFBA)	µg/L	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	<0.02	<0.02	0	<0.02	0.02	0	0.14	0.13	7	0.14	0.12	15
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	0.08	0	0.08	0.06	29	0.14	0.13	7	0.14	0.11	24
Perfluoroheptanoic acid (PFHpA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	0.03	0.04	29	0.03	0.03	0
Perfluorooctanoic acid (PFOA)	µg/L	0.02	0.02	0	0.02	0.01	67	0.02	0.02	0	0.02	0.02	0
Perfluorononanoic acid (PFNA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids													
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	0.22	0.23	4	0.22	0.21	5
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides													
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS													
Sum of PFHxS and PFOS	µg/L	1.09	1.00	9	1.09	1.25	14	0.73	0.71	3	0.73	0.81	10
Sum of PFAS (WA DER List)	µg/L	1.24	1.14	8	1.24	1.37	10	1.32	1.29	2	1.32	1.38	4
Sum of PFAS	µg/L	1.30	1.18	10	1.30	1.44	10	1.35	1.32	2	1.35	1.42	5

*RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

	Unit	12 Jun 2023 0967_SW036_230612 Water EP2307718	12 Jun 2023 0967_QC118_230612 Water EP2307718	RPD	12 Jun 2023 0967_SW036_230612 Water EP2307718	12 Jun 2023 0967_QC218_230612 Water 999535	RPD	12 Jun 2023 0967_SW060_230612 Water EP2307718	12 Jun 2023 0967_QC120_230612 Water EP2307718	RPD	12 Jun 2023 0967_SW060_230612 Water EP2307718	12 Jun 2023 0967_QC220_230612 Water 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids													
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.12	0.12	0	0.12	0.08	40	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.12	0.12	0	0.12	0.09	29	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.80	0.78	3	0.80	0.65	21	0.01	0.01	0	0.01	0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.03	0.03	0	0.03	0.04	29	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	1.74	1.70	2	1.74	2.1	19	0.02	0.01	67	0.02	0.02	0
Perfluorononanesulfonic acid (PFNS)	µg/L					<0.01						<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids													
Perfluorobutanoic acid (PFBA)	µg/L	<0.1	<0.1	0	<0.1	0.07	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.08	0.08	0	0.08	0.05	46	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.25	0.25	0	0.25	0.19	27	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	0.02	0	0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.05	0.06	18	0.05	0.04	22	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids													
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides													
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS													
Sum of PFHxS and PFOS	µg/L	2.54	2.48	2	2.54	2.75	8	0.03	0.02	40	0.03	0.03	0
Sum of PFAS (WA DER List)	µg/L	3.06	3.01	2	3.06	3.2	4	0.03	0.02	40	0.03	<0.05	0
Sum of PFAS	µg/L	3.21	3.16	2	3.21	3.36	5	0.03	0.02	40	0.03	<0.1	0

*RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

	Unit	13 Jun 2023 0967_SW020_230613 Water EP2307798	13 Jun 2023 0967_QC121_230613 Water EP2307798	RPD	13 Jun 2023 0967_SW020_230613 Water EP2307798	13 Jun 2023 0967_QC221_230613 Water 999535	RPD	13 Jun 2023 0967_SW049_230613 Water EP2307806	13 Jun 2023 0967_QC124_230613 Water EP2307806	RPD	13 Jun 2023 0967_SW049_230613 Water EP2307806	13 Jun 2023 0967_QC224_230613 Water 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids													
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.05	0.05	0	0.05	0.04	22	0.02	0.02	0	0.02	0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.06	0.06	0	0.06	0.05	18	<0.02	<0.02	0	<0.02	0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.43	0.41	5	0.43	0.42	2	0.14	0.15	7	0.14	0.12	15
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.02	0.02	0	0.02	0.03	40	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.91	0.89	2	0.91	1.1	19	0.22	0.23	4	0.22	0.28	**24**
Perfluorononanesulfonic acid (PFNS)	µg/L					<0.01						<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids													
Perfluorobutanoic acid (PFBA)	µg/L	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	0.02	0	0.02	0.02	0	0.03	0.03	0	0.03	0.03	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.08	0.08	0	0.08	0.07	13	0.05	0.05	0	0.05	0.04	22
Perfluoroheptanoic acid (PFHpA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.02	0.02	0	0.02	0.02	0	<0.01	0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids													
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides													
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS													
Sum of PFHxS and PFOS	µg/L	1.34	1.30	3	1.34	1.52	13	0.36	0.38	5	0.36	0.4	11
Sum of PFAS (WA DER List)	µg/L	1.51	1.47	3	1.51	1.67	10	0.46	0.49	6	0.46	0.49	6
Sum of PFAS	µg/L	1.59	1.55	3	1.59	1.77	11	0.46	0.49	6	0.46	0.5	8

**RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

		13 Jun 2023	13 Jun 2023		13 Jun 2023	13 Jun 2023	
		0967_SW036_230613	0967_QC125_230613		0967_SW036_230613	0967_QC225_230613	
		Water	Water		Water	Water	
		EP2307806	EP2307806	RPD	EP2307806	999535	RPD
	Unit						
PFAS - Perfluoroalkyl Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.13	0.12	8	0.13	0.11	17
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.13	0.16	21	0.13	0.11	17
Perfluorohexane sulfonic acid (PFHxS)	µg/L	1.01	0.93	8	1.01	0.94	7
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.04	0.04	0	0.04	0.05	22
Perfluorooctane sulfonic acid (PFOS)	µg/L	1.64	1.74	6	1.64	2.1	**25**
Perfluorononanesulfonic acid (PFNS)	µg/L					<0.01	
Perfluorodecane sulfonic acid (PFDS)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids							
Perfluorobutanoic acid (PFBA)	µg/L	<0.1	<0.1	0	<0.1	0.09	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.08	0.15	61	0.08	0.08	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.31	0.28	10	0.31	0.26	18
Perfluoroheptanoic acid (PFHpA)	µg/L	0.03	0.03	0	0.03	0.03	0
Perfluorooctanoic acid (PFOA)	µg/L	0.06	0.07	15	0.06	0.06	0
Perfluorononanoic acid (PFNA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides							
Perfluorooctane sulfonamide (FOSA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	<0.05	<0.05	0	<0.05	<0.05	0
PFAS							
Sum of PFHxS and PFOS	µg/L	2.65	2.67	1	2.65	3.04	14
Sum of PFAS (WA DER List)	µg/L	3.26	3.32	2	3.26	3.67	12
Sum of PFAS	µg/L	3.43	3.52	3	3.43	3.87	12

**RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound l

			Date	09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023		09 Jun 2023	09 Jun 2023	
			Field ID	0967_SD032_230609	0967_QC102_230609		0967_SD032_230609	0967_QC202_230609		0967_SD062_230609	0967_QC104_230609		0967_SD062_230609	0967_QC204_230609	
			Matrix Type	Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
			Lab Report Number	EP2307642	EP2307642	RPD	EP2307642	999535	RPD	EP2307633	EP2307633	RPD	EP2307633	999535	RPD
	Unit	LOR													
PFAS - Perfluoroalkyl Sulfonic Acids															
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002		0.0009	0.0004	77	0.0009	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002		0.0089	0.0072	21	0.0089	0.0069	25	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanesulfonic acid (PFNS)	mg/kg	0.005						<0.005						<0.005	
Perfluorodecane sulfonic acid (PFDS)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
PFAS - Perfluoroalkyl Carboxylic Acids															
Perfluorobutanoic acid (PFBA)	mg/kg	0.001		<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002		0.0002	<0.0002	0	0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002		0.0003	<0.0002	40	0.0003	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids															
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - Perfluoroalkyl Sulfonamides															
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002		<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005		<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS															
Sum of PFHxS and PFOS	mg/kg	0.0002		0.0098	0.0076	25	0.0098	0.0069	35	<0.0002	<0.0002	0	<0.0002	<0.005	0
Sum of PFAS (WA DER List)	mg/kg	0.0002		0.0103	0.0076	30	0.0103	<0.01	3	<0.0002	<0.0002	0	<0.0002	<0.01	0
Sum of PFAS	mg/kg	0.0002		0.0103	0.0076	30	0.0103	<0.05	0	<0.0002	<0.0002	0	<0.0002	<0.05	0

***RPDs have only been considered where a concentration is greater than 1 times the LOR.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each LOR multiplier range are: No Limit (1 - 10 x LOR); 50 (10 - 20 x LOR); 20 (> 20 x LOR))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

		10 Jun 2023	10 Jun 2023		10 Jun 2023	10 Jun 2023		10 Jun 2023	10 Jun 2023		10 Jun 2023	10 Jun 2023		11 Jun 2023	11 Jun 2023	
		0967_SD020_230610	0967_QC106_230610		0967_SD020_230610	0967_QC206_230610		0967_SD062_230610	0967_QC107_230610		0967_SD062_230610	0967_QC207_230610		0967_SD002_230611	0967_QC109_230611	
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
	Unit	EP2307674	EP2307674	RPD	EP2307674	999535	RPD	EP2307677	EP2307677	RPD	EP2307677	999535	RPD	EP2307679	EP2307679	RPD
PFAS - Perfluoroalkyl Sulfonic Acids																
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	0.0003	40
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	0.0002	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0004	0.0006	40	0.0004	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0012	0.0022	59
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	0.0003	40
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0234	0.0136	53	0.0234	0.02	16	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0134	0.0294	75
Perfluorononanesulfonic acid (PFNS)	mg/kg					<0.005						<0.005				
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
PFAS - Perfluoroalkyl Carboxylic Acids																
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids																
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS - Perfluoroalkyl Sulfonamides																
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS																
Sum of PFHxS and PFOS	mg/kg	0.0238	0.0142	51	0.0238	0.02	17	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0146	0.0316	74
Sum of PFAS (WA DER List)	mg/kg	0.0238	0.0142	51	0.0238	0.02	17	<0.0002	<0.0002	0	<0.0002	<0.01	0	0.0146	0.0319	74
Sum of PFAS	mg/kg	0.0238	0.0142	51	0.0238	<0.05	0	<0.0002	<0.0002	0	<0.0002	<0.05	0	0.0146	0.0324	76

**RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound t

		11 Jun 2023	11 Jun 2023		11 Jun 2023	11 Jun 2023		11 Jun 2023	11 Jun 2023		12 Jun 2023	12 Jun 2023		12 Jun 2023	12 Jun 2023	
		0967_SD002_230611	0967_QC209_230611		0967_SD020_230611	0967_QC111_230611		0967_SD020_230611	0967_QC211_230611		0967_SD032_230612	0967_QC114_230612		0967_SD032_230612	0967_QC214_230612	
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		EP2307679	999535	RPD	EP2307679	EP2307679	RPD	EP2307679	999535	RPD	EP2307716	EP2307716	RPD	EP2307716	999535	RPD
	Unit															
PFAS - Perfluoroalkyl Sulfonic Acids																
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0002	<0.0002	0	0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0012	<0.005	0	0.0013	0.0013	0	0.0013	<0.005	0	0.0014	0.0014	0	0.0014	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0134	0.022	**49**	0.0119	0.0102	15	0.0119	0.0092	**26**	0.0305	0.0224	**31**	0.0305	0.031	2
Perfluorononanesulfonic acid (PFNS)	mg/kg		<0.005						<0.005						<0.005	
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
PFAS - Perfluoroalkyl Carboxylic Acids																
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	<0.005	0	0.0004	0.0003	29	0.0004	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	<0.005	0	<0.0002	0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids																
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - Perfluoroalkyl Sulfonamides																
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS																
Sum of PFHxS and PFOS	mg/kg	0.0146	0.022	**40**	0.0132	0.0115	14	0.0132	0.0092	**36**	0.0319	0.0238	**29**	0.0319	0.031	3
Sum of PFAS (WA DER List)	mg/kg	0.0146	0.022	**40**	0.0136	0.0120	12	0.0136	<0.01	**31**	0.0319	0.0238	**29**	0.0319	0.031	3
Sum of PFAS	mg/kg	0.0146	<0.05	0	0.0136	0.0120	12	0.0136	<0.05	0	0.0321	0.0238	**30**	0.0321	<0.05	0

***RPDs have only been considered where a concentration**
****Elevated RPDs are highlighted as per QAQC Profile sett**
*****Interlab Duplicates are matched on a per compound t**

	Unit	12 Jun 2023 0967_SD025_230612 Soil EP2307716	12 Jun 2023 0967_QC115_230612 Soil EP2307716	RPD	12 Jun 2023 0967_SD025_230612 Soil EP2307716	12 Jun 2023 0967_QC215_230612 Soil 999535	RPD	12 Jun 2023 0967_SD036_230612 Soil EP2307719	12 Jun 2023 0967_QC117_230612 Soil EP2307719	RPD	12 Jun 2023 0967_SD036_230612 Soil EP2307719	12 Jun 2023 0967_QC217_230612 Soil 999535	RPD	12 Jun 2023 0967_SD060_230612 Soil EP2307719	12 Jun 2023 0967_QC119_230612 Soil EP2307719	RPD
PFAS - Perfluoroalkyl Sulfonic Acids																
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0003	<0.0002	40	0.0003	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0047	0.0032	38	0.0047	<0.005	0	0.0006	0.0004	40	0.0006	<0.005	0	<0.0002	<0.0002	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0005	0.0003	50	0.0005	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0672	0.0399	51	0.0672	0.041	48	0.0080	0.0051	44	0.0080	0.022	93	0.0009	0.0007	25
Perfluorononanesulfonic acid (PFNS)	mg/kg					<0.005						<0.005				
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0002	<0.0002	0	0.0002	<0.005	0	<0.0002	<0.0002	0
PFAS - Perfluoroalkyl Carboxylic Acids																
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0005	0.0003	50	0.0005	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	<0.0002	0	0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids																
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS - Perfluoroalkyl Sulfonamides																
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS																
Sum of PFHxS and PFOS	mg/kg	0.0719	0.0431	50	0.0719	0.041	55	0.0086	0.0055	44	0.0086	0.022	88	0.0009	0.0007	25
Sum of PFAS (WA DER List)	mg/kg	0.0726	0.0434	50	0.0726	0.041	56	0.0086	0.0055	44	0.0086	0.022	88	0.0009	0.0007	25
Sum of PFAS	mg/kg	0.0734	0.0437	51	0.0734	<0.05	38	0.0088	0.0055	46	0.0088	<0.05	0	0.0009	0.0007	25

**RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound t

		12 Jun 2023	12 Jun 2023		13 Jun 2023	13 Jun 2023		13 Jun 2023	13 Jun 2023		13 Jun 2023	13 Jun 2023		13 Jun 2023	13 Jun 2023	
		0967_SD060_230612	0967_QC219_230612		0967_SD049_230613	0967_QC123_230613		0967_SD049_230613	0967_QC223_230613		0967_SD025_230613	0967_QC122_230613		0967_SD025_230613	0967_QC222_230613	
		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
		EP2307719	999535	RPD	EP2307805	EP2307805	RPD	EP2307805	999535	RPD	EP2307799	EP2307799	RPD	EP2307799	999535	RPD
	Unit															
PFAS - Perfluoroalkyl Sulfonic Acids																
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0003	0.0004	29	0.0003	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	<0.0002	<0.005	0	<0.0002	0.0002	0	<0.0002	<0.005	0	0.0056	0.0096	**53**	0.0056	<0.005	11
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0007	0.0010	35	0.0007	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0009	<0.005	0	0.0032	0.0021	42	0.0032	<0.005	0	0.147	0.0541	**92**	0.147	0.075	**65**
Perfluorononanesulfonic acid (PFNS)	mg/kg		<0.005						<0.005						<0.005	
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0005	<0.0002	86	0.0005	<0.005	0
PFAS - Perfluoroalkyl Carboxylic Acids																
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0004	<0.0002	67	0.0004	<0.005	0
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0010	0.0006	50	0.0010	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0005	0.0003	50	0.0005	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids																
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - Perfluoroalkyl Sulfonamides																
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS																
Sum of PFHxS and PFOS	mg/kg	0.0009	<0.005	0	0.0032	0.0023	33	0.0032	<0.005	0	0.153	0.0637	**82**	0.153	0.075	**68**
Sum of PFAS (WA DER List)	mg/kg	0.0009	<0.01	0	0.0032	0.0023	33	0.0032	<0.01	0	0.154	0.0648	**82**	0.154	0.075	**69**
Sum of PFAS	mg/kg	0.0009	<0.05	0	0.0032	0.0023	33	0.0032	<0.05	0	0.156	0.0662	**81**	0.156	0.075	**70**

***RPDs have only been considered where a concentration**
****Elevated RPDs are highlighted as per QAQC Profile sett**
*****Interlab Duplicates are matched on a per compound t**

	Unit	13 Jun 2023 0967_SD036_230613 Soil EP2307805	13 Jun 2023 0967_QC126_230613 Soil EP2307805	RPD	13 Jun 2023 0967_SD036_230613 Soil EP2307805	13 Jun 2023 0967_QC226_230613 Soil 999535	RPD
PFAS - Perfluoroalkyl Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	0.0004	67	0.0002	<0.005	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0024	0.0071	**99**	0.0024	0.019	**155**
Perfluorononanesulfonic acid (PFNS)	mg/kg					<0.005	
Perfluorodecane sulfonic acid (PFDS)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
PFAS - Perfluoroalkyl Carboxylic Acids							
Perfluorobutanoic acid (PFBA)	mg/kg	<0.001	<0.001	0	<0.001	<0.005	0
Perfluoropentanoic acid (PFPeA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorohexanoic acid (PFHxA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorooctanoic acid (PFOA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorononanoic acid (PFNA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorodecanoic acid (PFDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.01	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS - Perfluoroalkyl Sulfonamides							
Perfluorooctane sulfonamide (FOSA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.005	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	<0.0002	<0.0002	0	<0.0002	<0.01	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	<0.0005	<0.0005	0	<0.0005	<0.005	0
PFAS							
Sum of PFHxS and PFOS	mg/kg	0.0026	0.0075	**97**	0.0026	0.019	**152**
Sum of PFAS (WA DER List)	mg/kg	0.0026	0.0075	**97**	0.0026	0.019	**152**
Sum of PFAS	mg/kg	0.0026	0.0075	**97**	0.0026	<0.05	0

*RPDs have only been considered where a concentration
**Elevated RPDs are highlighted as per QAQC Profile sett
***Interlab Duplicates are matched on a per compound t

Table B6: Sediment Results Summary

	PFOS (mg/kg)		PFOA (mg/kg)		Sum of PFHxS and PFOS (mg/kg)	
Location ID	Historical range	First Flush 2023[1]	Historical range	First Flush 2023[1]	Historical range	First Flush 2023[1]
On-Site drainage Channels						
SD002	0.0110 – 0.2380	0.0294	<0.0002 - 0.0010	0.0003	0.0116 – 0.2480	0.0316
SD007	0.8540 – 36.3	8.56	0.0030 – 0.0770	0.0228	0.9210 – 37.1	8.78
SD015	0.0128 – 0.230	0.114	<0.0002 – 0.0026	0.0009	0.0147 – 0.2397	0.122
SD020	0.0034 – 0.0986	0.0672	<0.0002 – 0.0005	0.0004	0.0043 – 0.10	0.0690
Ellen Brook						
SD022	0.0006 – 0.0458	0.0272	<0.0002 – 0.0037	<0.0002	0.0006 – 0.0753	0.0305
SD025	0.0007 – 0.152	0.147	<0.0002 – 0.0005	0.0005	0.0007 – 0.1610	0.153
SD028	0.0002 – 0.0203	0.0078	<0.0002	<0.0002	<0.0002 – 0.0221	0.0082
SD049	<0.0002 – 0.0930	0.0062	<0.0002	<0.0002	<0.0002 – 0.0930	0.0076
Ki-it Monger Brook						
SD032	0.0004 – 0.0961	0.0454	<0.0002 – 0.0003	**0.0005**	0.0004 – 0.1020	0.0506
SD034	0.0020 – 0.3530	0.0338	<0.0002 – 0.0010	0.0004	0.0020 – 0.3620	0.0356
SD036	0.0012 – 0.0616	**0.0798**	<0.0002 – 0.0003	<0.0002	0.0012 – 0.0655	**0.0821**
West Bullsbrook						
SD055	<0.0002 – 0.0410	<0.0002	<0.0002	<0.0002	<0.0002 – 0.0410	<0.0002
SD058	<0.0002 – 0.0043	0.0028	<0.0002	<0.0002	<0.0002 – 0.0043	0.0031
SD060	<0.0002 – 0.0139	0.0054	<0.0002	**0.0002**	<0.0002 – 0.0149	0.0054
Twin Swamps						
SD061	<0.0002 - 0.0795	0.0003	<0.0002	<0.0002	<0.0002 - 0.0875	0.0003
SD062	<0.0002 – 0.0068	<0.0002	<0.0002	<0.0002	<0.0002 – 0.0071	<0.0002

Notes: **Value**: concentration above historical range; **Value**: concentration below historical range.
[1]Highest value of the 5-day monitoring event has been adopted.

APPENDIX

C

LABORATORY CERTIFICATES

Cardno

now

Stantec

eurofins | mgt

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : Stantec Australia	Contact Name [redacted]	Purchase Order : 304700525/230	COC Number : 304700525/230 -01
Office Address : 226 Adelaide Tce, Perth, WA 6000		PROJECT Number : WA_0967_PFASOMP_23	Eurofins | mgt quote ID :
[redacted]	[redacted]	PROJECT Name : WA_0967_PFASOMP_23	Data output format: PDF; ESDAT

[redacted]

Eurofins | mgt DI water batch number:

Some common holding times (with correct preservation). For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

	Sample ID	Date	Matrix	Analytes: PFAS (28 analytes)	Containers: 1LP	250P	125P	1LA	40mL vial	125mL A	Jar		Sample comments:
1	0967_QC201_230609	9/06/2023	Water	X									
2	0967_QC202_230609	9/06/2023	Soil	X									
3	0967_QC203_230609	9/06/2023	Water	X									
4	0967_QC204_230609	9/06/2023	Soil	X									
5	0967_QC205_230610	10/06/2023	Water	X									
6	0967_QC206_230610	10/06/2023	Soil	X									
7	0967_QC207_230610	10/06/2023	Soil	X									
8	0967_QC208_230610	10/06/2023	Water	X									
9	0967_QC209_230611	11/06/2023	Soil	X									
10	0967_QC210_230611	11/06/2023	Water	X									
11	0967_QC211_230611	11/06/2023	Soil	X									
12	0967_QC212_230611	11/06/2023	Water	X									
13	0967_QC213_230612	12/06/2023	Water	X									
14	0967_QC214_230612	12/06/2023	Soil	X									
15	0967_QC215_230612	12/06/2023	Soil	X									
16	0967_QC216_230612	12/06/2023	Water	X									
17	0967_QC217_230612	12/06/2023	Soil	X									
18	0967_QC218_230612	12/06/2023	Water	X									
19	0967_QC219_230612	12/06/2023	Soil	X									
20	0967_QC220_230612	12/06/2023	Water	X									
21	0967_QC221_230613	13/06/2023	Water	X									
22	0967_QC222_230613	13/06/2023	Soil	X									
23	0967_QC223_230613	13/06/2023	Soil	X									
24	0967_QC224_230613	13/06/2023	Water	X									
25	0967_QC225_230613	13/06/2023	Water	X									
26	0967_QC226_230613	13/06/2023	Soil	X									

Relinquished By:	Laboratory Staff: Received By:	Turn around time	Method Of Shipment	Temperature on arrival:
Stantec		1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☑ Courier	14°c
Date & Time : 14/06/23 8:03 am	Date & Time : 15/06/23 @ 15:00	STANDARD ☑ Other:	☐ Hand Delivered	Report number:
Signature: JS	Signature:		☐ Postal	999535
			Courier Consignment # :	

Stantec Australia Pty Limited
6F 226,Adelaide Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: [redacted]

Report **999535-S**
Project name
Project ID WA_0967_PFASOMP_23
Received Date Jun 15, 2023

Client Sample ID			**0967_QC202_230609**	**0967_QC204_230609**	**0967_QC206_230610**	**0967_QC207_230610**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-Jn0036167**	**L23-Jn0036169**	**L23-Jn0036171**	**L23-Jn0036172**
Date Sampled			**Jun 09, 2023**	**Jun 09, 2023**	**Jun 10, 2023**	**Jun 10, 2023**
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	15	26	27	4.1
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	79	69	76	81
13C5-PFPeA (surr.)	1	%	82	76	83	83
13C5-PFHxA (surr.)	1	%	92	91	92	95
13C4-PFHpA (surr.)	1	%	94	95	90	96
13C8-PFOA (surr.)	1	%	93	92	89	94
13C5-PFNA (surr.)	1	%	98	96	91	97
13C6-PFDA (surr.)	1	%	99	99	101	98
13C2-PFUnDA (surr.)	1	%	96	94	100	103
13C2-PFDoDA (surr.)	1	%	102	96	107	107
13C2-PFTeDA (surr.)	1	%	99	96	87	104
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10

Client Sample ID			0967_QC202_230609	0967_QC204_230609	0967_QC206_230610	0967_QC207_230610
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-Jn0036167	L23-Jn0036169	L23-Jn0036171	L23-Jn0036172
Date Sampled			Jun 09, 2023	Jun 09, 2023	Jun 10, 2023	Jun 10, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
13C8-FOSA (surr.)	1	%	79	76	77	80
D3-N-MeFOSA (surr.)	1	%	105	95	100	111
D5-N-EtFOSA (surr.)	1	%	122	111	112	130
D7-N-MeFOSE (surr.)	1	%	81	70	81	74
D9-N-EtFOSE (surr.)	1	%	79	66	78	70
D5-N-EtFOSAA (surr.)	1	%	111	89	113	103
D3-N-MeFOSAA (surr.)	1	%	110	104	116	114
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]6.9	< 5	[N09]20	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	102	95	97	102
18O2-PFHxS (surr.)	1	%	92	87	86	95
13C8-PFOS (surr.)	1	%	78	76	80	84
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	56	74	62	67
13C2-6:2 FTSA (surr.)	1	%	92	99	88	89
13C2-8:2 FTSA (surr.)	1	%	103	89	88	83
13C2-10:2 FTSA (surr.)	1	%	100	112	105	107
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	6.9	< 5	20	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	6.9	< 5	20	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	6.9	< 5	20	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	20	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			0967_QC209_230611	0967_QC211_230611	0967_QC214_230612	0967_QC215_230612
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-Jn0036174	L23-Jn0036176	L23-Jn0036179	L23-Jn0036180
Date Sampled			Jun 11, 2023	Jun 11, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	12	20	33	25
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	77	78	70	76
13C5-PFPeA (surr.)	1	%	84	91	79	76
13C5-PFHxA (surr.)	1	%	92	96	89	94
13C4-PFHpA (surr.)	1	%	99	94	86	101
13C8-PFOA (surr.)	1	%	92	94	88	102
13C5-PFNA (surr.)	1	%	101	97	87	101
13C6-PFDA (surr.)	1	%	103	105	91	99
13C2-PFUnDA (surr.)	1	%	96	104	79	92
13C2-PFDoDA (surr.)	1	%	104	112	79	105
13C2-PFTeDA (surr.)	1	%	100	94	83	92
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	79	85	70	79
D3-N-MeFOSA (surr.)	1	%	107	107	94	102
D5-N-EtFOSA (surr.)	1	%	125	123	118	118
D7-N-MeFOSE (surr.)	1	%	77	88	64	70
D9-N-EtFOSE (surr.)	1	%	73	84	59	66
D5-N-EtFOSAA (surr.)	1	%	108	123	67	107
D3-N-MeFOSAA (surr.)	1	%	108	131	63	113
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			0967_QC209_230611	0967_QC211_230611	0967_QC214_230612	0967_QC215_230612
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-Jn0036174	L23-Jn0036176	L23-Jn0036179	L23-Jn0036180
Date Sampled			Jun 11, 2023	Jun 11, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]22	[N09]9.2	[N09]31	[N09]41
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	101	104	94	100
18O2-PFHxS (surr.)	1	%	98	91	84	90
13C8-PFOS (surr.)	1	%	84	83	74	82
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	77	62	67	85
13C2-6:2 FTSA (surr.)	1	%	98	86	93	115
13C2-8:2 FTSA (surr.)	1	%	99	100	79	104
13C2-10:2 FTSA (surr.)	1	%	105	115	71	108
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	22	9.2	31	41
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	22	9.2	31	41
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	22	9.2	31	41
Sum of WA DWER PFAS (n=10)*	10	ug/kg	22	< 10	31	41
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			0967_QC217_230612	0967_QC219_230612	0967_QC222_230613	0967_QC223_230613
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-Jn0036182	L23-Jn0036184	L23-Jn0036187	L23-Jn0036188
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 13, 2023	Jun 13, 2023
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	32	13	33	18
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	70	77	71	69
13C5-PFPeA (surr.)	1	%	80	89	82	80
13C5-PFHxA (surr.)	1	%	98	95	90	92
13C4-PFHpA (surr.)	1	%	94	96	91	88

Client Sample ID			0967_QC217_230612	0967_QC219_230612	0967_QC222_230613	0967_QC223_230613
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-Jn0036182	L23-Jn0036184	L23-Jn0036187	L23-Jn0036188
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 13, 2023	Jun 13, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C8-PFOA (surr.)	1	%	83	96	91	89
13C5-PFNA (surr.)	1	%	79	99	96	89
13C6-PFDA (surr.)	1	%	77	101	94	94
13C2-PFUnDA (surr.)	1	%	54	98	91	84
13C2-PFDoDA (surr.)	1	%	44	104	96	84
13C2-PFTeDA (surr.)	1	%	59	97	89	81
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	52	82	76	73
D3-N-MeFOSA (surr.)	1	%	83	109	96	97
D5-N-EtFOSA (surr.)	1	%	105	121	111	112
D7-N-MeFOSE (surr.)	1	%	59	83	70	71
D9-N-EtFOSE (surr.)	1	%	55	78	66	67
D5-N-EtFOSAA (surr.)	1	%	29	113	99	73
D3-N-MeFOSAA (surr.)	1	%	23	111	104	70
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]22	< 5	[N09]75	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	91	98	96	98
18O2-PFHxS (surr.)	1	%	83	91	89	87
13C8-PFOS (surr.)	1	%	70	81	76	75
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	96	73	77	72
13C2-6:2 FTSA (surr.)	1	%	99	98	105	94
13C2-8:2 FTSA (surr.)	1	%	50	111	100	89
13C2-10:2 FTSA (surr.)	1	%	32	102	102	80

Client Sample ID			0967_QC217_230612	0967_QC219_230612	0967_QC222_230613	0967_QC223_230613
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-Jn0036182**	**L23-Jn0036184**	**L23-Jn0036187**	**L23-Jn0036188**
Date Sampled			**Jun 12, 2023**	**Jun 12, 2023**	**Jun 13, 2023**	**Jun 13, 2023**
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	22	< 5	75	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	22	< 5	75	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	22	< 5	75	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	22	< 10	75	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	75	< 50

Client Sample ID			0967_QC226_230613
Sample Matrix			**Soil**
Eurofins Sample No.			**L23-Jn0036191**
Date Sampled			**Jun 13, 2023**
Test/Reference	LOR	Unit	
Sample Properties			
% Moisture	1	%	31
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5
13C4-PFBA (surr.)	1	%	69
13C5-PFPeA (surr.)	1	%	78
13C5-PFHxA (surr.)	1	%	87
13C4-PFHpA (surr.)	1	%	89
13C8-PFOA (surr.)	1	%	84
13C5-PFNA (surr.)	1	%	82
13C6-PFDA (surr.)	1	%	88
13C2-PFUnDA (surr.)	1	%	79
13C2-PFDoDA (surr.)	1	%	73
13C2-PFTeDA (surr.)	1	%	79
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10

Client Sample ID			0967_QC226_230613
Sample Matrix			**Soil**
Eurofins Sample No.			**L23-Jn0036191**
Date Sampled			**Jun 13, 2023**
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
13C8-FOSA (surr.)	1	%	64
D3-N-MeFOSA (surr.)	1	%	92
D5-N-EtFOSA (surr.)	1	%	108
D7-N-MeFOSE (surr.)	1	%	67
D9-N-EtFOSE (surr.)	1	%	65
D5-N-EtFOSAA (surr.)	1	%	60
D3-N-MeFOSAA (surr.)	1	%	51
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]19
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5
13C3-PFBS (surr.)	1	%	93
18O2-PFHxS (surr.)	1	%	84
13C8-PFOS (surr.)	1	%	75
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5
13C2-4:2 FTSA (surr.)	1	%	58
13C2-6:2 FTSA (surr.)	1	%	80
13C2-8:2 FTSA (surr.)	1	%	67
13C2-10:2 FTSA (surr.)	1	%	63
PFASs Summations			
Sum (PFHxS + PFOS)*	5	ug/kg	19
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	19
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	19
Sum of WA DWER PFAS (n=10)*	10	ug/kg	19
Sum of PFASs (n=30)*	50	ug/kg	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Jun 16, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jun 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jun 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jun 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jun 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jun 16, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Company Name: Stantec Australia Pty Ltd (WA)
Address: 6F 226,Adelaide Terrace
Perth
WA 6000

Project Name:
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525/230
Report #: 999535
Phone: 0458 839 200
Fax:

Received: Jun 15, 2023 3:00 PM
Due: Jun 22, 2023
Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	0967_QC201_230609	Jun 09, 2023		Water	L23-Jn0036166		X
2	0967_QC202_230609	Jun 09, 2023		Soil	L23-Jn0036167	X	X
3	0967_QC203_230609	Jun 09, 2023		Water	L23-Jn0036168		X
4	0967_QC204_230609	Jun 09, 2023		Soil	L23-Jn0036169	X	X
5	0967_QC205_230610	Jun 10, 2023		Water	L23-Jn0036170		X
6	0967_QC206_230610	Jun 10, 2023		Soil	L23-Jn0036171	X	X
7	0967_QC207_230610	Jun 10, 2023		Soil	L23-Jn0036172	X	X
8	0967_QC208_230610	Jun 10, 2023		Water	L23-Jn0036173		X

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Order No.: 304700525/230
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Phone: 0458 839 200
Fax:

Received: Jun 15, 2023 3:00 PM
Due: Jun 22, 2023
Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
9	0967_QC209_230611	Jun 11, 2023		Soil	L23-Jn0036174	X	X
10	0967_QC210_230611	Jun 11, 2023		Water	L23-Jn0036175		X
11	0967_QC211_230611	Jun 11, 2023		Soil	L23-Jn0036176	X	X
12	0967_QC212_230611	Jun 11, 2023		Water	L23-Jn0036177		X
13	0967_QC213_230612	Jun 12, 2023		Water	L23-Jn0036178		X
14	0967_QC214_230612	Jun 12, 2023		Soil	L23-Jn0036179	X	X
15	0967_QC215_230612	Jun 12, 2023		Soil	L23-Jn0036180	X	X
16	0967_QC216_230612	Jun 12, 2023		Water	L23-Jn0036181		X
17	0967_QC217_230612	Jun 12, 2023		Soil	L23-Jn0036182	X	X
18	0967_QC218_	Jun 12, 2023		Water	L23-Jn0036183		X

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Fax:

Received: Jun 15, 2023 3:00 PM
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Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
18	0967_QC218_230612	Jun 12, 2023		Water	L23-Jn0036183		
19	0967_QC219_230612	Jun 12, 2023		Soil	L23-Jn0036184	X	X
20	0967_QC220_230612	Jun 12, 2023		Water	L23-Jn0036185		X
21	0967_QC221_230613	Jun 13, 2023		Water	L23-Jn0036186		X
22	0967_QC222_230613	Jun 13, 2023		Soil	L23-Jn0036187	X	X
23	0967_QC223_230613	Jun 13, 2023		Soil	L23-Jn0036188	X	X
24	0967_QC224_230613	Jun 13, 2023		Water	L23-Jn0036189		X
25	0967_QC225_230613	Jun 13, 2023		Water	L23-Jn0036190		X
26	0967_QC226_230613	Jun 13, 2023		Soil	L23-Jn0036191	X	X
Test Counts						13	26

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	123			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	99			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	112			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	119			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	122			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	120			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	136			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	116			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	125			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	104			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	115			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	125			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	117			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	120			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	117			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	122			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	120			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	102			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	129			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	95			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	97			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	106			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	128			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	112			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	125			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	117			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	114			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	124			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	106			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluoroundecanoic acid (PFUnDA)	M23-Jn0041307	NCP	%	150			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	L23-Jn0036172	CP	%	138			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L23-Jn0036172	CP	%	120			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L23-Jn0036172	CP	%	129			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L23-Jn0036172	CP	%	122			50-150	Pass	
Perfluorooctanoic acid (PFOA)	L23-Jn0036172	CP	%	130			50-150	Pass	
Perfluorononanoic acid (PFNA)	L23-Jn0036172	CP	%	139			50-150	Pass	
Perfluorodecanoic acid (PFDA)	L23-Jn0036172	CP	%	133			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	L23-Jn0036172	CP	%	128			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L23-Jn0036172	CP	%	129			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L23-Jn0036172	CP	%	138			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	L23-Jn0036172	CP	%	125			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L23-Jn0036172	CP	%	132			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L23-Jn0036172	CP	%	127			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L23-Jn0036172	CP	%	136			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L23-Jn0036172	CP	%	133			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L23-Jn0036172	CP	%	144			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L23-Jn0036172	CP	%	134			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	L23-Jn0036172	CP	%	113			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	L23-Jn0036172	CP	%	136			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	L23-Jn0036172	CP	%	107			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L23-Jn0036172	CP	%	113			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L23-Jn0036172	CP	%	123			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L23-Jn0036172	CP	%	138			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	L23-Jn0036172	CP	%	123			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L23-Jn0036172	CP	%	128			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L23-Jn0036172	CP	%	133			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L23-Jn0036172	CP	%	120			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L23-Jn0036172	CP	%	129			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L23-Jn0036172	CP	%	128			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-Jn0036179	CP	%	33	34	3.6	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L23-Jn0036179	CP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L23-Jn0036179	CP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	L23-Jn0036179	CP	ug/kg	31	30	3.8	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L23-Jn0036179	CP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L23-Jn0036179	CP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-Jn0036187	CP	%	33	37	11	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Andrew Harvey	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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NATA Accredited
Accreditation Number 2377
Site Number 2370

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: [redacted]

Report **999535-W-V2**
Project name
Project ID WA_0967_PFASOMP_23
Received Date Jun 15, 2023

Client Sample ID			**0967_QC201_230609**	**0967_QC203_230609**	**0967_QC205_230610**	**0967_QC208_230610**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Jn0036166**	**L23-Jn0036168**	**L23-Jn0036170**	**L23-Jn0036173**
Date Sampled			**Jun 09, 2023**	**Jun 09, 2023**	**Jun 10, 2023**	**Jun 10, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.02	< 0.01	0.02	0.03
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.06	< 0.01	0.06	0.03
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.01	< 0.01	[N09]0.02	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	68	39	73	42
13C5-PFPeA (surr.)	1	%	113	63	112	83
13C5-PFHxA (surr.)	1	%	79	57	76	66
13C4-PFHpA (surr.)	1	%	83	66	78	74
13C8-PFOA (surr.)	1	%	77	76	74	77
13C5-PFNA (surr.)	1	%	82	77	77	75
13C6-PFDA (surr.)	1	%	79	80	84	87
13C2-PFUnDA (surr.)	1	%	64	68	75	70
13C2-PFDoDA (surr.)	1	%	53	56	65	53
13C2-PFTeDA (surr.)	1	%	52	59	85	49
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	104	97	115	107
D3-N-MeFOSA (surr.)	1	%	98	132	118	126

Client Sample ID			0967_QC201_230609	0967_QC203_230609	0967_QC205_230610	0967_QC208_230610
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Jn0036166**	**L23-Jn0036168**	**L23-Jn0036170**	**L23-Jn0036173**
Date Sampled			**Jun 09, 2023**	**Jun 09, 2023**	**Jun 10, 2023**	**Jun 10, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	85	132	109	125
D7-N-MeFOSE (surr.)	1	%	69	68	86	77
D9-N-EtFOSE (surr.)	1	%	83	84	106	86
D5-N-EtFOSAA (surr.)	1	%	65	71	70	71
D3-N-MeFOSAA (surr.)	1	%	74	68	78	74
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	[N09]0.02	< 0.01	[N09]0.03	[N09]0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01	0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]0.03	< 0.01	[N09]0.04	[N09]0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.24	< 0.01	[N09]0.36	[N09]0.10
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.02	< 0.01	[N09]0.02	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]0.81	< 0.01	[N09]1.0	[N09]0.31
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	95	79	96	86
18O2-PFHxS (surr.)	1	%	69	72	64	69
13C8-PFOS (surr.)	1	%	81	95	80	95
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	109	78	92	77
13C2-6:2 FTSA (surr.)	1	%	117	121	105	97
13C2-8:2 FTSA (surr.)	1	%	101	87	102	84
13C2-10:2 FTSA (surr.)	1	%	69	79	89	88
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.05	< 0.01	1.36	0.41
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.82	< 0.01	1.02	0.31
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.06	< 0.01	1.38	0.41
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	1.16	< 0.05	1.49	0.48
Sum of PFASs (n=30)*	0.1	ug/L	1.21	< 0.1	1.56	0.49

Client Sample ID			0967_QC210_230611	0967_QC212_230611	0967_QC213_230612	0967_QC216_230612
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Jn0036175**	**L23-Jn0036177**	**L23-Jn0036178**	**L23-Jn0036181**
Date Sampled			**Jun 11, 2023**	**Jun 11, 2023**	**Jun 12, 2023**	**Jun 12, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	2.0	1.6	< 0.05	0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	3.4	[N09]2.3	0.02	0.12
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	15	[N09]8.0	0.06	0.11
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.99	[N09]0.85	< 0.01	[N09]0.03
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]3.8	[N09]2.0	[N09]0.01	[N09]0.02

Client Sample ID			0967_QC210_230611	0967_QC212_230611	0967_QC213_230612	0967_QC216_230612
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Jn0036175	L23-Jn0036177	L23-Jn0036178	L23-Jn0036181
Date Sampled			Jun 11, 2023	Jun 11, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	[N09]0.07	[N09]0.05	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.2	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	149	123	54	42
13C5-PFPeA (surr.)	1	%	150	136	102	94
13C5-PFHxA (surr.)	1	%	132	138	96	99
13C4-PFHpA (surr.)	1	%	55	144	94	97
13C8-PFOA (surr.)	1	%	124	142	94	104
13C5-PFNA (surr.)	1	%	60	91	93	98
13C6-PFDA (surr.)	1	%	117	78	87	89
13C2-PFUnDA (surr.)	1	%	63	55	53	46
13C2-PFDoDA (surr.)	1	%	59	66	64	48
13C2-PFTeDA (surr.)	1	%	94	60	58	35
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	[N09]0.97	[N09]< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	94	83	116	109
D3-N-MeFOSA (surr.)	1	%	141	144	135	39
D5-N-EtFOSA (surr.)	1	%	142	150	103	22
D7-N-MeFOSE (surr.)	1	%	85	66	78	56
D9-N-EtFOSE (surr.)	1	%	113	64	82	49
D5-N-EtFOSAA (surr.)	1	%	80	65	57	50
D3-N-MeFOSAA (surr.)	1	%	77	78	56	51
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	[N09]4.2	3.2	0.03	0.03
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	[N09]2.6	[N09]0.37	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	[N09]1.6	1.5	0.01	0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]5.1	[N09]2.8	[N09]0.04	[N09]0.02
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]55	[N09]27	[N09]0.34	[N09]0.23
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]5.0	[N09]1.2	[N09]0.02	[N09]0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]330	[N09]90	[N09]0.91	[N09]0.58
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	[N09]0.86	< 0.1	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	125	126	107	108
18O2-PFHxS (surr.)	1	%	121	142	95	112
13C8-PFOS (surr.)	1	%	112	124	81	83

Client Sample ID			0967_QC210_230611	0967_QC212_230611	0967_QC213_230612	0967_QC216_230612
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Jn0036175	L23-Jn0036177	L23-Jn0036178	L23-Jn0036181
Date Sampled			Jun 11, 2023	Jun 11, 2023	Jun 12, 2023	Jun 12, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	0.27	0.08	< 0.05	0.21
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	0.15	0.02	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	80	83	79	82
13C2-6:2 FTSA (surr.)	1	%	56	85	93	89
13C2-8:2 FTSA (surr.)	1	%	94	64	73	70
13C2-10:2 FTSA (surr.)	1	%	63	67	60	46
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	385	117	1.25	0.81
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	333.8	92	0.92	0.6
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	388.8	119	1.26	0.83
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	414.81	135.05	1.37	1.38
Sum of PFASs (n=30)*	0.1	ug/L	431.01	140.97	1.44	1.42

Client Sample ID			0967_QC218_230612	0967_QC220_230612	0967_QC221_230613	0967_QC224_230613
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Jn0036183	L23-Jn0036185	L23-Jn0036186	L23-Jn0036189
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 13, 2023	Jun 13, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	0.07	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.05	< 0.01	0.02	0.03
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.19	< 0.01	0.07	0.04
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.02	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.04	< 0.01	[N09]0.02	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	56	32	54	40
13C5-PFPeA (surr.)	1	%	109	71	110	81
13C5-PFHxA (surr.)	1	%	105	81	104	90
13C4-PFHpA (surr.)	1	%	111	82	104	95
13C8-PFOA (surr.)	1	%	114	90	100	110
13C5-PFNA (surr.)	1	%	115	83	103	103
13C6-PFDA (surr.)	1	%	93	69	88	90
13C2-PFUnDA (surr.)	1	%	54	38	49	49
13C2-PFDoDA (surr.)	1	%	54	45	49	53
13C2-PFTeDA (surr.)	1	%	38	34	38	38

Client Sample ID			0967_QC218_230612	0967_QC220_230612	0967_QC221_230613	0967_QC224_230613
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Jn0036183	L23-Jn0036185	L23-Jn0036186	L23-Jn0036189
Date Sampled			Jun 12, 2023	Jun 12, 2023	Jun 13, 2023	Jun 13, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	117	85	112	102
D3-N-MeFOSA (surr.)	1	%	47	53	72	71
D5-N-EtFOSA (surr.)	1	%	30	38	47	51
D7-N-MeFOSE (surr.)	1	%	59	46	65	57
D9-N-EtFOSE (surr.)	1	%	58	50	61	59
D5-N-EtFOSAA (surr.)	1	%	54	39	52	48
D3-N-MeFOSAA (surr.)	1	%	60	42	55	53
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	0.08	< 0.01	0.04	0.02
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	0.03	< 0.01	0.02	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]0.09	< 0.01	[N09]0.05	[N09]0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.65	[N09]0.01	[N09]0.42	[N09]0.12
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.04	< 0.01	[N09]0.03	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]2.1	[N09]0.02	[N09]1.1	[N09]0.28
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	120	92	112	107
18O2-PFHxS (surr.)	1	%	108	108	102	117
13C8-PFOS (surr.)	1	%	74	73	75	85
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	99	68	89	79
13C2-6:2 FTSA (surr.)	1	%	138	91	106	114
13C2-8:2 FTSA (surr.)	1	%	76	54	78	67
13C2-10:2 FTSA (surr.)	1	%	57	45	49	59
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	2.75	0.03	1.52	0.4
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	2.14	0.02	1.12	0.28
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	2.79	0.03	1.54	0.4
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	3.2	< 0.05	1.67	0.49
Sum of PFASs (n=30)*	0.1	ug/L	3.36	< 0.1	1.77	0.5

Client Sample ID			0967_QC225_230613
Sample Matrix			**Water**
Eurofins Sample No.			**L23-Jn0036190**
Date Sampled			**Jun 13, 2023**
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	0.09
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.08
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.26
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.03
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.06
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	39
13C5-PFPeA (surr.)	1	%	91
13C5-PFHxA (surr.)	1	%	85
13C4-PFHpA (surr.)	1	%	92
13C8-PFOA (surr.)	1	%	97
13C5-PFNA (surr.)	1	%	95
13C6-PFDA (surr.)	1	%	81
13C2-PFUnDA (surr.)	1	%	53
13C2-PFDoDA (surr.)	1	%	57
13C2-PFTeDA (surr.)	1	%	41
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	109
D3-N-MeFOSA (surr.)	1	%	83
D5-N-EtFOSA (surr.)	1	%	61
D7-N-MeFOSE (surr.)	1	%	57
D9-N-EtFOSE (surr.)	1	%	65
D5-N-EtFOSAA (surr.)	1	%	56
D3-N-MeFOSAA (surr.)	1	%	56
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	0.11
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	0.04
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]0.11
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.94
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.05
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]2.1
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01

Client Sample ID			0967_QC225_230613
Sample Matrix			**Water**
Eurofins Sample No.			**L23-Jn0036190**
Date Sampled			**Jun 13, 2023**
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonic acids (PFSAs)			
13C3-PFBS (surr.)	1	%	96
18O2-PFHxS (surr.)	1	%	93
13C8-PFOS (surr.)	1	%	64
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	91
13C2-6:2 FTSA (surr.)	1	%	102
13C2-8:2 FTSA (surr.)	1	%	71
13C2-10:2 FTSA (surr.)	1	%	56
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	3.04
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	2.16
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	3.1
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	3.67
Sum of PFASs (n=30)*	0.1	ug/L	3.87

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Jun 30, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Jun 30, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Jun 30, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Jun 30, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Jun 16, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

eurofins

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Project Name:
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525/230
Report #: 999535
Phone: 0458 839 200
Fax:

Received: Jun 15, 2023 3:00 PM
Due: Jun 22, 2023
Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	0967_QC201_230609	Jun 09, 2023		Water	L23-Jn0036166		X
2	0967_QC202_230609	Jun 09, 2023		Soil	L23-Jn0036167	X	X
3	0967_QC203_230609	Jun 09, 2023		Water	L23-Jn0036168		X
4	0967_QC204_230609	Jun 09, 2023		Soil	L23-Jn0036169	X	X
5	0967_QC205_230610	Jun 10, 2023		Water	L23-Jn0036170		X
6	0967_QC206_230610	Jun 10, 2023		Soil	L23-Jn0036171	X	X
7	0967_QC207_230610	Jun 10, 2023		Soil	L23-Jn0036172	X	X
8	0967_QC208_230610	Jun 10, 2023		Water	L23-Jn0036173		X

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Project Name:
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525/230
Report #: 999535
Phone: 0458 839 200
Fax:

Received: Jun 15, 2023 3:00 PM
Due: Jun 22, 2023
Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
9	0967_QC209_230611	Jun 11, 2023		Soil	L23-Jn0036174	X	X
10	0967_QC210_230611	Jun 11, 2023		Water	L23-Jn0036175		X
11	0967_QC211_230611	Jun 11, 2023		Soil	L23-Jn0036176	X	X
12	0967_QC212_230611	Jun 11, 2023		Water	L23-Jn0036177		X
13	0967_QC213_230612	Jun 12, 2023		Water	L23-Jn0036178		X
14	0967_QC214_230612	Jun 12, 2023		Soil	L23-Jn0036179	X	X
15	0967_QC215_230612	Jun 12, 2023		Soil	L23-Jn0036180	X	X
16	0967_QC216_230612	Jun 12, 2023		Water	L23-Jn0036181		X
17	0967_QC217_230612	Jun 12, 2023		Soil	L23-Jn0036182	X	X
18	0967_QC218_	Jun 12, 2023		Water	L23-Jn0036183		X

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Project Name:
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525/230
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Priority: 5 Day
Contact Name: [redacted]

Eurofins Analytical Services Manager : Andrew Harvey

Sample Detail						Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
18	0967_QC218_230612	Jun 12, 2023		Water	L23-Jn0036183		
19	0967_QC219_230612	Jun 12, 2023		Soil	L23-Jn0036184	X	X
20	0967_QC220_230612	Jun 12, 2023		Water	L23-Jn0036185		X
21	0967_QC221_230613	Jun 13, 2023		Water	L23-Jn0036186		X
22	0967_QC222_230613	Jun 13, 2023		Soil	L23-Jn0036187	X	X
23	0967_QC223_230613	Jun 13, 2023		Soil	L23-Jn0036188	X	X
24	0967_QC224_230613	Jun 13, 2023		Water	L23-Jn0036189		X
25	0967_QC225_230613	Jun 13, 2023		Water	L23-Jn0036190		X
26	0967_QC226_230613	Jun 13, 2023		Soil	L23-Jn0036191	X	X
Test Counts						13	26

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	80			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	80			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	78			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	72			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	78			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	76			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	80			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	80			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	82			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	76			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	89			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	92			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	81			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	89			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	99			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	78			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	72			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	91			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	60			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	81			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	74			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	86			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	83			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	83			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	75			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	83			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	79			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	M23-Jn0024006	NCP	%	101			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	M23-Jn0024006	NCP	%	90			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	M23-Jn0024006	NCP	%	91			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	M23-Jn0024006	NCP	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	M23-Jn0024006	NCP	%	84			50-150	Pass	
Perfluorononanoic acid (PFNA)	M23-Jn0024006	NCP	%	84			50-150	Pass	
Perfluorodecanoic acid (PFDA)	M23-Jn0024006	NCP	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	M23-Jn0024006	NCP	%	92			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	M23-Jn0024006	NCP	%	87			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	M23-Jn0024006	NCP	%	129			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M23-Jn0024006	NCP	%	89			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	M23-Jn0024006	NCP	%	92			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M23-Jn0024006	NCP	%	94			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M23-Jn0024006	NCP	%	87			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M23-Jn0024006	NCP	%	86			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M23-Jn0024006	NCP	%	100			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M23-Jn0024006	NCP	%	125			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M23-Jn0024006	NCP	%	105			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	M23-Jn0024006	NCP	%	84			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	M23-Jn0024006	NCP	%	108			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M23-Jn0024006	NCP	%	100			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M23-Jn0024006	NCP	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M23-Jn0024006	NCP	%	92			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M23-Jn0024006	NCP	%	103			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	M23-Jn0024006	NCP	%	95			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	M23-Jn0024006	NCP	%	108			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M23-Jn0024006	NCP	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M23-Jn0024006	NCP	%	103			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M23-Jn0024006	NCP	%	93			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M23-Jn0024006	NCP	%	76			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M23-Jn0041428	NCP	ug/L	0.02	0.02	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M23-Jn0041428	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M23-Jn0041428	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

v2 report issued with updated results for sample 23-Jn0036177 following repeat analysis on client request.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Andrew Harvey	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307633**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023 12:40
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53408	Issue Date	: 19-Jun-2023 13:54
Sampler	: [redacted]		
Site	: Pearce SD - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230609	0967_SD062_230609	0967_QC104_230609	0967_SD061_230609	0967_SD060_230609
				Sampling date / time	09-Jun-2023 08:49	09-Jun-2023 09:32	09-Jun-2023 09:32	09-Jun-2023 09:34	09-Jun-2023 10:13
Compound	CAS Number	LOR	Unit		EP2307633-001	EP2307633-002	EP2307633-003	EP2307633-004	EP2307633-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**20.3**	**25.1**	**24.9**	**46.4**	**23.4**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0024**	<0.0002	<0.0002	<0.0002	**0.0054**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230609	0967_SD062_230609	0967_QC104_230609	0967_SD061_230609	0967_SD060_230609
				Sampling date / time	09-Jun-2023 08:49	09-Jun-2023 09:32	09-Jun-2023 09:32	09-Jun-2023 09:34	09-Jun-2023 10:13
Compound	CAS Number	LOR	Unit		EP2307633-001	EP2307633-002	EP2307633-003	EP2307633-004	EP2307633-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0026**	<0.0002	<0.0002	<0.0002	**0.0054**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0026**	<0.0002	<0.0002	<0.0002	**0.0054**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0026**	<0.0002	<0.0002	<0.0002	**0.0054**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**120**	**114**	**118**	**119**	**118**
13C8-PFOA	----	0.0002	%		**104**	**103**	**104**	**108**	**102**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD058_230609	0967_SD055_230609	----	----	----
				Sampling date / time	09-Jun-2023 10:58	09-Jun-2023 10:58	----	----	----
Compound	CAS Number	LOR	Unit		EP2307633-006	EP2307633-007	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**47.3**	**66.4**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0003**	<0.0002	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0028**	**0.0011**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD058_230609	0967_SD055_230609	----	----	----
			Sampling date / time	09-Jun-2023 10:58	09-Jun-2023 10:58	----	----	----
Compound	CAS Number	LOR	Unit	EP2307633-006	EP2307633-007	--------	--------	--------
				Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0031**	**0.0011**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0031**	**0.0011**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0031**	**0.0011**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**106**	**116**	----	----	----
13C8-PFOA	----	0.0002	%	**100**	**110**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307633**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53408	Issue Date	: 19-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5113332)									
EP2307467-010	Anonymous	EA055: Moisture Content	----	0.1	%	19.1	17.4	9.6	0% - 20%
EP2307467-021	Anonymous	EA055: Moisture Content	----	0.1	%	17.9	19.7	9.8	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307642-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0003	0.0004	41.2	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0056	0.0058	2.6	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0933	0.104	10.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0031	0.0037	18.7	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5109709) - continued									
EP2307362-030	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307642-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0009	0.0010	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307642-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307642-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307642-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.105	0.117	10.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0989	0.110	10.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.101	0.112	10.4	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5109709)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	114	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	110	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	113	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	107	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	104	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5109709)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	113	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5109709)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	116	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	132	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5109709)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5109709) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	123	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	116	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	129	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	100	54.8	124
EP231P: PFAS Sums (QCLot: 5109709)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	113	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	109	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	109	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	114	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	101	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	103	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	110	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	103	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	105	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	114	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	109	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	112	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	108	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	104	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	116	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	123	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5109709)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5109709) - continued							
EP2307362-031	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	112	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	107	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	103	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	112	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	107	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	130	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	130	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	128	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	89.6	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307633**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Site	: Pearce SD - CG	Issue Date	: 19-Jun-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 7
Order number	: pfas-omp Pearce	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**----**	----	----	**15-Jun-2023**	23-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD049_230609, 0967_SD062_230609, 0967_QC104_230609, 0967_SD061_230609, 0967_SD060_230609, 0967_SD058_230609, 0967_SD055_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EP2307633**		
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53408	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - CG		
Sampler	: [redacted]		

Dates

Date Samples Received	: 09-Jun-2023 12:40	Issue Date	: 12-Jun-2023
Client Requested Due Date	: 19-Jun-2023	Scheduled Reporting Date	: **19-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 11.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307633-001	09-Jun-2023 08:49	0967_SD049_230609	✓	✓
EP2307633-002	09-Jun-2023 09:32	0967_SD062_230609	✓	✓
EP2307633-003	09-Jun-2023 09:32	0967_QC104_230609	✓	✓
EP2307633-004	09-Jun-2023 09:34	0967_SD061_230609	✓	✓
EP2307633-005	09-Jun-2023 10:13	0967_SD060_230609	✓	✓
EP2307633-006	09-Jun-2023 10:58	0967_SD058_230609	✓	✓
EP2307633-007	09-Jun-2023 10:58	0967_SD055_230609	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CHAIN OF CUSTODY

ALS COC#: 53408 ALS Laboratory: EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	EG DATE TIME: 9/6 @ 1240.	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD049		09/06/2023 08:49 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD062		09/06/2023 09:32 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_QC104		09/06/2023 09:32 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD061		09/06/2023 09:34 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD060		09/06/2023 10:13 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD058		09/06/2023 10:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD055		09/06/2023 10:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

Environmental Division Perth

Work Order Reference

EP2307633



Telephone : +61-8-9406 1301

CHAIN OF CUSTODY

ALS COC#: 53408 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD049	HDPE Soil Jar	200 mL	00621122106266	Grey	No	
002	0967_SD062	HDPE Soil Jar	200 mL	00621122079197	Grey	No	
003	0967_QC104	HDPE Soil Jar	200 mL	00621122079849	Grey	No	
004	0967_SD061	HDPE Soil Jar	200 mL	00621122079160	Grey	No	
005	0967_SD060	HDPE Soil Jar	200 mL	00621122079228	Grey	No	
006	0967_SD058	HDPE Soil Jar	200 mL	00621122079806	Grey	No	
007	0967_SD055	HDPE Soil Jar	200 mL	00621122079208	Grey	No	

Total Bottle Count: ALS: 7, Non ALS: 0

CHAIN OF CUSTODY

COC#: 53408 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD049		09/06/2023 08:49 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD062		09/06/2023 09:32 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_QC104		09/06/2023 09:32 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD061		09/06/2023 09:34 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD060		09/06/2023 10:13 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD058		09/06/2023 10:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD055		09/06/2023 10:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 53408 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD049	HDPE Soil Jar	200 mL	00621122106266	Grey	No	
002	0967_SD062	HDPE Soil Jar	200 mL	00621122079197	Grey	No	
003	0967_QC104	HDPE Soil Jar	200 mL	00621122079849	Grey	No	
004	0967_SD061	HDPE Soil Jar	200 mL	00621122079160	Grey	No	
005	0967_SD060	HDPE Soil Jar	200 mL	00621122079228	Grey	No	
006	0967_SD058	HDPE Soil Jar	200 mL	00621122079806	Grey	No	
007	0967_SD055	HDPE Soil Jar	200 mL	00621122079208	Grey	No	

Total Bottle Count: ALS: 7, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307634**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023 12:40
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53409	Issue Date	: 19-Jun-2023 22:32
Sampler	: [redacted]		
Site	: Pearce SW - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230609	0967_SW048_230609	0967_SW067_230609	0967_QC103_230609	0967_SW066_230609
				Sampling date / time	09-Jun-2023 08:49	09-Jun-2023 09:06	09-Jun-2023 09:30	09-Jun-2023 09:31	09-Jun-2023 09:34
Compound	CAS Number	LOR	Unit		EP2307634-001	EP2307634-002	EP2307634-003	EP2307634-004	EP2307634-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**41**	**45**	**46**	**47**	**89**
Total Alkalinity as CaCO3	----	1	mg/L		**41**	**45**	**46**	**47**	**89**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**65**	**63**	**73**	**76**	**34**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**173**	**231**	**180**	**195**	**190**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**18**	**20**	**28**	**29**	**27**
Magnesium	7439-95-4	1	mg/L		**19**	**20**	**17**	**18**	**18**
Sodium	7440-23-5	1	mg/L		**99**	**132**	**112**	**113**	**109**
Potassium	7440-09-7	1	mg/L		**8**	**8**	**7**	**7**	**6**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**7.05**	**8.73**	**7.52**	**8.02**	**7.84**
ø Total Cations	----	0.01	meq/L		**6.97**	**8.59**	**7.85**	**8.02**	**7.72**
ø Ionic Balance	----	0.01	%		**0.57**	**0.79**	**2.15**	<0.01	**0.78**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	**0.05**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.24**	**0.16**	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.56**	**0.39**	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.04**	**0.03**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.07**	**0.04**	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230609	0967_SW048_230609	0967_SW067_230609	0967_QC103_230609	0967_SW066_230609
				Sampling date / time	09-Jun-2023 08:49	09-Jun-2023 09:06	09-Jun-2023 09:30	09-Jun-2023 09:31	09-Jun-2023 09:34
Compound	CAS Number	LOR	Unit		EP2307634-001	EP2307634-002	EP2307634-003	EP2307634-004	EP2307634-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.01**	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230609	0967_SW048_230609	0967_SW067_230609	0967_QC103_230609	0967_SW066_230609
				Sampling date / time	09-Jun-2023 08:49	09-Jun-2023 09:06	09-Jun-2023 09:30	09-Jun-2023 09:31	09-Jun-2023 09:34
Compound	CAS Number	LOR	Unit		EP2307634-001	EP2307634-002	EP2307634-003	EP2307634-004	EP2307634-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.99**	**0.68**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.80**	**0.55**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.96**	**0.68**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**114**	**117**	**108**	**115**	**104**
13C8-PFOA	----	0.02	%		**102**	**105**	**102**	**106**	**104**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230609	0967_SW058_230609	0967_SW055_230609	----	----
				Sampling date / time	09-Jun-2023 10:12	09-Jun-2023 10:56	09-Jun-2023 10:59	----	----
Compound	CAS Number	LOR	Unit		EP2307634-006	EP2307634-007	EP2307634-008	--------	--------
					Result	Result	Result	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		111	109	34	----	----
Total Alkalinity as CaCO3	----	1	mg/L		111	109	34	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		90	90	65	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		151	150	146	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		50	49	25	----	----
Magnesium	7439-95-4	1	mg/L		12	12	12	----	----
Sodium	7440-23-5	1	mg/L		95	93	76	----	----
Potassium	7440-09-7	1	mg/L		20	20	24	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		8.35	8.28	6.15	----	----
ø Total Cations	----	0.01	meq/L		8.13	7.99	6.15	----	----
ø Ionic Balance	----	0.01	%		1.36	1.80	0.03	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.02	0.02	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.02	0.02	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230609	0967_SW058_230609	0967_SW055_230609	----	----
				Sampling date / time	09-Jun-2023 10:12	09-Jun-2023 10:56	09-Jun-2023 10:59	----	----
Compound	CAS Number	LOR	Unit		EP2307634-006	EP2307634-007	EP2307634-008	--------	--------
					Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230609	0967_SW058_230609	0967_SW055_230609	----	----
				Sampling date / time	09-Jun-2023 10:12	09-Jun-2023 10:56	09-Jun-2023 10:59	----	----
Compound	CAS Number	LOR	Unit		EP2307634-006	EP2307634-007	EP2307634-008	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	**----**	**----**
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	**0.04**	<0.01	**----**	**----**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	**0.04**	<0.01	**----**	**----**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	**0.04**	<0.01	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**124**	**104**	**104**	**----**	**----**
13C8-PFOA	----	0.02	%		**106**	**106**	**103**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307634**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53409	Issue Date	: 19-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5108420)									
EP2307670-012	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	254	262	3.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	254	262	3.0	0% - 20%
EP2307491-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	50	51	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	50	51	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5106253)									
EP2307587-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	878	876	0.2	0% - 20%
EP2307590-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2460	2450	0.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5106254)									
EP2307587-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5500	5530	0.6	0% - 20%
EP2307590-008	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	18200	18300	0.4	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5105911)									
EP2307634-001	0967_SW049_230609	ED093F: Calcium	7440-70-2	1	mg/L	18	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	19	19	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	99	99	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP2307643-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	17	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5108420)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	87.8	118
				<1	200 mg/L	103	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106253)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.4	89.9	112
				<1	500 mg/L	99.1	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5106254)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	104	88.6	113
				<1	1000 mg/L	96.8	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5105911)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	107	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.6	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.7	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5113218)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	112	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	105	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	91.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	106	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5113218)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	90.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	97.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.2	69.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5113218) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	96.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5113218)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	81.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	87.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.5	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.9	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	81.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	134	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5113218)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	116	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5113218)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106253)							
EP2307587-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106253) - continued							
EP2307587-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	200 mg/L	# Not Determined	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5106254)							
EP2307587-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307634**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Site	: Pearce SW - CG	Issue Date	: 19-Jun-2023
Sampler	: [redacted]	No. of samples received	: 8
Order number	: pfas-omp Pearce	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EP2307587--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	EP2307587--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
0967_SW049_230609,	0967_SW048_230609,	**09-Jun-2023**	**----**	----	**----**	**15-Jun-2023**	23-Jun-2023	✓
0967_SW067_230609,	0967_QC103_230609,							
0967_SW066_230609,	0967_SW060_230609,							
0967_SW058_230609,	0967_SW055_230609							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
0967_SW049_230609,	0967_SW048_230609,	**09-Jun-2023**	**----**	----	**----**	**19-Jun-2023**	07-Jul-2023	✓
0967_SW067_230609,	0967_QC103_230609,							
0967_SW066_230609,	0967_SW060_230609,							
0967_SW058_230609,	0967_SW055_230609							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**----**	----	----	**19-Jun-2023**	07-Jul-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**----**	----	----	**16-Jun-2023**	16-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW049_230609, 0967_SW048_230609, 0967_SW067_230609, 0967_QC103_230609, 0967_SW066_230609, 0967_SW060_230609, 0967_SW058_230609, 0967_SW055_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307634**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53409	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - CG		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 09-Jun-2023 12:40	Issue Date	: 12-Jun-2023
Client Requested Due Date	: 19-Jun-2023	Scheduled Reporting Date	: **19-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 11.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307634-001	09-Jun-2023 08:49	0967_SW049_230609	✓	✓
EP2307634-002	09-Jun-2023 09:06	0967_SW048_230609	✓	✓
EP2307634-003	09-Jun-2023 09:30	0967_SW067_230609	✓	✓
EP2307634-004	09-Jun-2023 09:31	0967_QC103_230609	✓	✓
EP2307634-005	09-Jun-2023 09:34	0967_SW066_230609	✓	✓
EP2307634-006	09-Jun-2023 10:12	0967_SW060_230609	✓	✓
EP2307634-007	09-Jun-2023 10:56	0967_SW058_230609	✓	✓
EP2307634-008	09-Jun-2023 10:59	0967_SW055_230609	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307634

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967-PFASOMP-23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 53405, 53406, 53409, 53408 **# Samples:** 1 Eski **Sampler:**

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	EG		
Date / Time: 9/6/23	**Date / Time:** 9/6 @ 1240.	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

ALS COC#: 53409 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: EG 9/6 @ 12:40	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW049		09/06/2023 08:49 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW048		09/06/2023 09:06 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW067		09/06/2023 09:30 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_QC103		09/06/2023 09:31 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW066		09/06/2023 09:34 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_SW060		09/06/2023 10:12 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_SW058		09/06/2023 10:56 AM	WATER	ALS: 3 Non ALS: 0	No	X		
008	0967_SW055		09/06/2023 10:59 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307642**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023 12:40
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53405	Issue Date	: 19-Jun-2023 22:28
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD015_230609	0967_SD007_230609	0967_SD002_230609	0967_SD020_230609	0967_SD032_230609
				Sampling date / time	09-Jun-2023 07:58	09-Jun-2023 08:23	09-Jun-2023 08:36	09-Jun-2023 09:05	09-Jun-2023 09:12
Compound	CAS Number	LOR	Unit		EP2307642-001	EP2307642-002	EP2307642-003	EP2307642-004	EP2307642-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**31.8**	**52.2**	**27.5**	**46.7**	**16.3**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		**0.0003**	**0.0109**	**0.0004**	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		**0.0003**	**0.0159**	**0.0003**	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0056**	**0.218**	**0.0022**	**0.0018**	**0.0009**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		**0.0004**	**0.0705**	**0.0003**	**0.0004**	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0933**	**8.56**	**0.0252**	**0.0672**	**0.0089**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0031**	**0.254**	**0.0006**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	**0.004**	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0003**	**0.0056**	<0.0002	<0.0002	**0.0002**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0009**	**0.0237**	**0.0003**	**0.0004**	**0.0003**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	**0.0048**	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0004**	**0.0228**	**0.0003**	**0.0004**	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	**0.0021**	**0.0003**	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	**0.0036**	**0.0010**	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	**0.0074**	**0.0029**	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	**0.0209**	**0.0044**	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	**0.0104**	**0.0027**	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	**0.0096**	**0.0023**	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		**0.0004**	**0.244**	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	**0.0049**	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD015_230609	0967_SD007_230609	0967_SD002_230609	0967_SD020_230609	0967_SD032_230609
				Sampling date / time	09-Jun-2023 07:58	09-Jun-2023 08:23	09-Jun-2023 08:36	09-Jun-2023 09:05	09-Jun-2023 09:12
Compound	CAS Number	LOR	Unit		EP2307642-001	EP2307642-002	EP2307642-003	EP2307642-004	EP2307642-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	**0.0018**	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	**0.0048**	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	**0.0172**	**0.0019**	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	**0.0020**	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.105**	**9.52**	**0.0471**	**0.0702**	**0.0103**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0989**	**8.78**	**0.0274**	**0.0690**	**0.0098**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.101**	**8.87**	**0.0303**	**0.0698**	**0.0103**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**117**	**86.0**	**119**	**114**	**113**
13C8-PFOA	----	0.0002	%		**107**	**108**	**108**	**116**	**100**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_QC102_230609	0967_SD034_230609	0967_SD028_230609	0967_SD025_230609	0967_SD022_230609
				Sampling date / time	09-Jun-2023 09:13	09-Jun-2023 09:29	09-Jun-2023 09:46	09-Jun-2023 10:19	09-Jun-2023 10:42
Compound	CAS Number	LOR	Unit		EP2307642-006	EP2307642-007	EP2307642-008	EP2307642-009	EP2307642-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**18.3**	**15.9**	**35.5**	**30.2**	**13.8**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0004**	**0.0010**	**0.0012**	**0.0064**	**0.0004**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0009**	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0072**	**0.0234**	**0.0052**	**0.0936**	**0.0029**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	**0.0005**	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_QC102_230609	0967_SD034_230609	0967_SD028_230609	0967_SD025_230609	0967_SD022_230609
			Sampling date / time	09-Jun-2023 09:13	09-Jun-2023 09:29	09-Jun-2023 09:46	09-Jun-2023 10:19	09-Jun-2023 10:42
Compound	CAS Number	LOR	Unit	EP2307642-006	EP2307642-007	EP2307642-008	EP2307642-009	EP2307642-010
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0076**	**0.0247**	**0.0064**	**0.102**	**0.0033**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0076**	**0.0244**	**0.0064**	**0.100**	**0.0033**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0076**	**0.0247**	**0.0064**	**0.101**	**0.0033**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**118**	**118**	**122**	**112**	**114**
13C8-PFOA	----	0.0002	%	**106**	**99.5**	**106**	**107**	**103**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD036_230609	----	----	----	----
				Sampling date / time	09-Jun-2023 11:22	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307642-011	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**27.8**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		**0.0002**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		**0.0003**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0023**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		**0.0004**	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0798**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0005**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0004**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD036_230609	----	----	----	----
				Sampling date / time	09-Jun-2023 11:22	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307642-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0839**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0821**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0832**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**104**	----	----	----	----
13C8-PFOA	----	0.0002	%		**110**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SEDIMENT		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307642**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53405	Issue Date	: 19-Jun-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5113335)									
EP2307642-001	0967_SD015_230609	EA055: Moisture Content	----	0.1	%	31.8	29.6	7.0	0% - 20%
EP2307642-010	0967_SD022_230609	EA055: Moisture Content	----	0.1	%	13.8	14.6	6.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307642-001	0967_SD015_230609	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0003	0.0004	41.2	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0056	0.0058	2.6	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0933	0.104	10.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0031	0.0037	18.7	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5110656)									
EP2307642-011	0967_SD036_230609	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0023	0.0022	0.0	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0798	0.0830	3.9	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307651-038	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5110656) - continued									
EP2307651-038	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0038	0.0038	0.0	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307642-001	0967_SD015_230609	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0009	0.0010	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5110656)									
EP2307642-011	0967_SD036_230609	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307651-038	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5110656) - continued									
EP2307651-038	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0006	0.0005	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307642-001	0967_SD015_230609	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5110656)									
EP2307642-011	0967_SD036_230609	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5110656) - continued									
EP2307642-011	0967_SD036_230609	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307651-038	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307642-001	0967_SD015_230609	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5110656)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5110656) - continued									
EP2307642-011	0967_SD036_230609	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307651-038	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5109709)									
EP2307362-030	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307642-001	0967_SD015_230609	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.105	0.117	10.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0989	0.110	10.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.101	0.112	10.4	0% - 20%
EP231P: PFAS Sums (QC Lot: 5110656)									
EP2307642-011	0967_SD036_230609	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0839	0.0867	3.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0821	0.0852	3.7	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0832	0.0861	3.4	0% - 20%
EP2307651-038	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0044	0.0043	2.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0038	0.0038	0.0	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0044	0.0043	2.3	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5109709)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	114	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	110	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	113	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	107	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	104	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5110656)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	113	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	106	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	110	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	120	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	116	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5109709)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	113	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5110656)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	124	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	71.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5110656) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	118	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5109709)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	116	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	132	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5110656)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	116	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5109709)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	123	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	116	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	129	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	100	54.8	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5110656)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	118	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	121	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	115	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	110	54.8	124
EP231P: PFAS Sums (QCLot: 5109709)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 5110656)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	113	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	109	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	109	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	114	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	101	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	103	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5110656)							
EP2307651-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	121	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	120	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	96.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	112	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	113	59.0	134

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	110	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	103	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	105	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	114	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	109	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	112	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	108	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	104	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	116	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	123	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	104	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5110656)							
EP2307651-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	123	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	117	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	100	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	102	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	104	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	101	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	115	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	104	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	106	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	104	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	106	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	112	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	107	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	103	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	112	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	107	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5110656)							
EP2307651-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	99.7	48.0	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5110656) - continued							
EP2307651-002	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	113	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	106	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	111	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	119	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	105	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	94.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5109709)							
EP2307362-031	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	130	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	130	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	128	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	89.6	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5110656)							
EP2307651-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	120	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	123	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	112	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	118	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307642**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Site	: Pearce SD - JS	Issue Date	: 19-Jun-2023
Sampler	: [redacted]	No. of samples received	: 11
Order number	: pfas-omp Pearce	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307651--002	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**----**	----	----	**15-Jun-2023**	23-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD015_230609, 0967_SD007_230609, 0967_SD002_230609, 0967_SD020_230609, 0967_SD032_230609, 0967_QC102_230609, 0967_SD034_230609, 0967_SD028_230609, 0967_SD025_230609, 0967_SD022_230609, 0967_SD036_230609	**09-Jun-2023**	**14-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	24-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307642**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53405	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 09-Jun-2023 12:40	Issue Date	: 12-Jun-2023
Client Requested Due Date	: 19-Jun-2023	Scheduled Reporting Date	: **19-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 11.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307642-001	09-Jun-2023 07:58	0967_SD015_230609	✓	✓
EP2307642-002	09-Jun-2023 08:23	0967_SD007_230609	✓	✓
EP2307642-003	09-Jun-2023 08:36	0967_SD002_230609	✓	✓
EP2307642-004	09-Jun-2023 09:05	0967_SD020_230609	✓	✓
EP2307642-005	09-Jun-2023 09:12	0967_SD032_230609	✓	✓
EP2307642-006	09-Jun-2023 09:13	0967_QC102_230609	✓	✓
EP2307642-007	09-Jun-2023 09:29	0967_SD034_230609	✓	✓
EP2307642-008	09-Jun-2023 09:46	0967_SD028_230609	✓	✓
EP2307642-009	09-Jun-2023 10:19	0967_SD025_230609	✓	✓
EP2307642-010	09-Jun-2023 10:42	0967_SD022_230609	✓	✓
EP2307642-011	09-Jun-2023 11:22	0967_SD036_230609	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) Email [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au
- EDI Format - XTab (XTAB) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

CHAIN OF CUSTODY

ALS COC#: 53405 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	EG DATE TIME: 9/6 @ 1240.	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

[redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD015		09/06/2023 07:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD007		09/06/2023 08:23 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD002		09/06/2023 08:36 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD020		09/06/2023 09:05 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD032		09/06/2023 09:12 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_QC102		09/06/2023 09:13 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD034		09/06/2023 09:29 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD028		09/06/2023 09:46 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_SD025		09/06/2023 10:19 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

Environmental Division Perth

Work Order Reference

EP2307642

Telephone : +61-8-9406 1301

CHAIN OF CUSTODY

COC#: **53405** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SD022		09/06/2023 10:42 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
011	0967_SD036		09/06/2023 11:22 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: **53405** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD015	HDPE Soil Jar	200 mL	00621122079775	Grey	No	
002	0967_SD007	HDPE Soil Jar	200 mL	00621122079184	Grey	No	
003	0967_SD002	HDPE Soil Jar	200 mL	00621122079209	Grey	No	
004	0967_SD020	HDPE Soil Jar	200 mL	00621122079234	Grey	No	
005	0967_SD032	HDPE Soil Jar	200 mL	00621122079248	Grey	No	
006	0967_QC102	HDPE Soil Jar	200 mL	00621122079252	Grey	No	
007	0967_SD034	HDPE Soil Jar	200 mL	00621122079194	Grey	No	
008	0967_SD028	HDPE Soil Jar	200 mL	00621122079247	Grey	No	
009	0967_SD025	HDPE Soil Jar	200 mL	00621122035110	Grey	No	
010	0967_SD022	HDPE Soil Jar	200 mL	00621122079812	Grey	No	
011	0967_SD036	HDPE Soil Jar	200 mL	00621122079216	Grey	No	

Total Bottle Count: ALS: 11, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307643**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023 12:40
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53406	Issue Date	: 19-Jun-2023 22:30
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 18		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230609	0967_QC401_230609	0967_QC402_230609	----	----
				Sampling date / time	09-Jun-2023 11:40	09-Jun-2023 11:38	09-Jun-2023 11:39	----	----
Compound	CAS Number	LOR	Unit		EP2307643-015	EP2307643-017	EP2307643-018	--------	--------
					Result	Result	Result	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230609	0967_QC401_230609	0967_QC402_230609	----	----
				Sampling date / time	09-Jun-2023 11:40	09-Jun-2023 11:38	09-Jun-2023 11:39	----	----
Compound	CAS Number	LOR	Unit		EP2307643-015	EP2307643-017	EP2307643-018	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**116**	**120**	**113**	----	----
13C8-PFOA	----	0.02	%		**102**	**106**	**105**	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230609	0967_SW010_230609	0967_SW018_230609	0967_SW007_230609	0967_SW002_230609
				Sampling date / time	09-Jun-2023 07:57	09-Jun-2023 08:03	09-Jun-2023 08:11	09-Jun-2023 08:23	09-Jun-2023 08:37
Compound	CAS Number	LOR	Unit		EP2307643-001	EP2307643-002	EP2307643-003	EP2307643-004	EP2307643-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		30	30	98	84	195
Total Alkalinity as CaCO3	----	1	mg/L		30	30	98	84	195
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		9	9	15	18	31
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		27	28	26	54	288
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		4	4	17	26	30
Magnesium	7439-95-4	1	mg/L		2	2	3	5	10
Sodium	7440-23-5	1	mg/L		22	23	32	38	208
Potassium	7440-09-7	1	mg/L		5	6	6	6	17
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		1.55	1.58	3.00	3.58	12.7
ø Total Cations	----	0.01	meq/L		1.45	1.52	2.64	3.52	11.8
ø Ionic Balance	----	0.01	%		3.32	1.89	6.43	0.86	3.53
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.17	0.19	0.24	4.74	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.61	0.67	0.16	5.10	0.04
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		30.9	31.2	1.40	27.8	0.20
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		7.04	7.31	<0.02	4.22	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		29.5	34.2	0.02	170	1.38
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	0.80	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		0.2	0.2	<0.1	2.7	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.42	0.46	0.03	3.67	0.04
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		2.97	3.09	0.17	10.6	0.08

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230609	0967_SW010_230609	0967_SW018_230609	0967_SW007_230609	0967_SW002_230609
				Sampling date / time	09-Jun-2023 07:57	09-Jun-2023 08:03	09-Jun-2023 08:11	09-Jun-2023 08:23	09-Jun-2023 08:37
Compound	CAS Number	LOR	Unit		EP2307643-001	EP2307643-002	EP2307643-003	EP2307643-004	EP2307643-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.52**	**0.53**	**0.02**	**1.45**	**0.04**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**4.27**	**4.46**	<0.01	**3.96**	**0.05**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	**0.11**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	**0.07**	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	**0.04**	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	**0.05**	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.06**	**0.06**	<0.02	**1.74**	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	**0.02**	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.30**	**0.32**	<0.05	**0.37**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	**0.36**	**0.08**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230609	0967_SW010_230609	0967_SW018_230609	0967_SW007_230609	0967_SW002_230609
				Sampling date / time	09-Jun-2023 07:57	09-Jun-2023 08:03	09-Jun-2023 08:11	09-Jun-2023 08:23	09-Jun-2023 08:37
Compound	CAS Number	LOR	Unit		EP2307643-001	EP2307643-002	EP2307643-003	EP2307643-004	EP2307643-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**77.0**	**82.7**	**2.04**	**238**	**1.94**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**60.4**	**65.4**	**1.42**	**198**	**1.58**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**69.2**	**74.6**	**1.88**	**226**	**1.90**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**111**	**110**	**112**	**85.9**	**104**
13C8-PFOA	----	0.02	%		**107**	**108**	**103**	**106**	**94.4**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230609	0967_QC101_230609	0967_SW032_230609	0967_SW034_230609	0967_SW028_230609
				Sampling date / time	09-Jun-2023 08:55	09-Jun-2023 08:57	09-Jun-2023 09:14	09-Jun-2023 09:28	09-Jun-2023 09:45
Compound	CAS Number	LOR	Unit		EP2307643-006	EP2307643-007	EP2307643-008	EP2307643-009	EP2307643-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		92	92	70	71	14
Total Alkalinity as CaCO3	----	1	mg/L		92	92	70	71	14
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		11	13	30	23	68
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		26	26	106	78	373
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		16	16	20	18	26
Magnesium	7439-95-4	1	mg/L		3	3	9	7	35
Sodium	7440-23-5	1	mg/L		30	30	63	50	179
Potassium	7440-09-7	1	mg/L		6	6	6	5	8
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		2.80	2.84	5.01	4.10	12.2
ø Total Cations	----	0.01	meq/L		2.50	2.50	4.63	3.78	12.2
ø Ionic Balance	----	0.01	%		5.60	6.33	3.95	4.07	0.20
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.03	0.03	<0.02	0.03	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.04	0.02	<0.02	0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.25	0.30	0.10	0.24	0.17
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.70	0.70	0.27	0.66	0.22
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.06	0.07	0.03	0.08	0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230609	0967_QC101_230609	0967_SW032_230609	0967_SW034_230609	0967_SW028_230609
				Sampling date / time	09-Jun-2023 08:55	09-Jun-2023 08:57	09-Jun-2023 09:14	09-Jun-2023 09:28	09-Jun-2023 09:45
Compound	CAS Number	LOR	Unit		EP2307643-006	EP2307643-007	EP2307643-008	EP2307643-009	EP2307643-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	<0.01	**0.02**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230609	0967_QC101_230609	0967_SW032_230609	0967_SW034_230609	0967_SW028_230609
				Sampling date / time	09-Jun-2023 08:55	09-Jun-2023 08:57	09-Jun-2023 09:14	09-Jun-2023 09:28	09-Jun-2023 09:45
Compound	CAS Number	LOR	Unit		EP2307643-006	EP2307643-007	EP2307643-008	EP2307643-009	EP2307643-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.10**	**1.14**	**0.40**	**1.05**	**0.44**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.95**	**1.00**	**0.37**	**0.90**	**0.39**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.06**	**1.12**	**0.40**	**1.03**	**0.44**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	**115**	**99.0**	**110**	**106**
13C8-PFOA	----	0.02	%		**99.8**	**101**	**92.0**	**94.4**	**97.5**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230609	0967_SW022_230609	0967_SW036_230609	0967_SW038_230609	0967_QC302_230609
				Sampling date / time	09-Jun-2023 10:18	09-Jun-2023 10:44	09-Jun-2023 11:20	09-Jun-2023 11:21	09-Jun-2023 11:41
Compound	CAS Number	LOR	Unit		EP2307643-011	EP2307643-012	EP2307643-013	EP2307643-014	EP2307643-016
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**33**	**62**	**65**	**41**	----
Total Alkalinity as CaCO3	----	1	mg/L		**33**	**62**	**65**	**41**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**8**	**19**	**16**	**14**	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**23**	**115**	**65**	**76**	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**6**	**15**	**14**	**10**	----
Magnesium	7439-95-4	1	mg/L		**2**	**8**	**6**	**6**	----
Sodium	7440-23-5	1	mg/L		**20**	**66**	**42**	**39**	----
Potassium	7440-09-7	1	mg/L		**2**	**4**	**5**	**6**	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**1.47**	**4.88**	**3.46**	**3.25**	----
ø **Total Cations**	----	0.01	meq/L		**1.38**	**4.38**	**3.15**	**2.84**	----
ø **Ionic Balance**	----	0.01	%		**3.13**	**5.38**	**4.81**	**6.75**	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.02**	**0.03**	**0.04**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	**0.02**	**0.03**	**0.03**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.54**	**0.18**	**0.30**	**0.32**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**1.65**	**0.43**	**0.72**	**0.79**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.16**	<0.02	**0.02**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	**0.14**	**0.08**	**0.09**	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230609	0967_SW022_230609	0967_SW036_230609	0967_SW038_230609	0967_QC302_230609
				Sampling date / time	09-Jun-2023 10:18	09-Jun-2023 10:44	09-Jun-2023 11:20	09-Jun-2023 11:21	09-Jun-2023 11:41
Compound	CAS Number	LOR	Unit		EP2307643-011	EP2307643-012	EP2307643-013	EP2307643-014	EP2307643-016
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.04**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	**0.02**	**0.02**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.32**	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230609	0967_SW022_230609	0967_SW036_230609	0967_SW038_230609	0967_QC302_230609
				Sampling date / time	09-Jun-2023 10:18	09-Jun-2023 10:44	09-Jun-2023 11:20	09-Jun-2023 11:21	09-Jun-2023 11:41
Compound	CAS Number	LOR	Unit		EP2307643-011	EP2307643-012	EP2307643-013	EP2307643-014	EP2307643-016
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**2.37**	**1.33**	**1.18**	**1.31**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**2.19**	**0.61**	**1.02**	**1.11**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**2.30**	**1.31**	**1.15**	**1.28**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	**104**	**102**	**104**	**111**
13C8-PFOA	----	0.02	%		**91.5**	**94.9**	**94.9**	**93.6**	**108**

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **SURFACE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307643**	Page	: 1 of 12
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53406	Issue Date	: 19-Jun-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 18		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5108420)									
EP2307670-012	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	254	262	3.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	254	262	3.0	0% - 20%
EP2307491-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	50	51	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	50	51	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5109802)									
EP2307643-003	0967_SW018_230609	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	98	98	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	98	98	0.0	0% - 20%
EP2307739-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	77	75	2.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	77	75	2.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5109813)									
EP2307643-012	0967_SW022_230609	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	62	62	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	62	62	0.0	0% - 20%
EP2307721-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5109813) - continued									
EP2307721-002	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	8	12	36.1	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	8	12	36.1	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5106124)									
EP2307643-001	0967_SW015_230609	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	9	9	0.0	No Limit
EP2307643-011	0967_SW025_230609	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	6	34.4	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5106125)									
EP2307643-001	0967_SW015_230609	ED045G: Chloride	16887-00-6	1	mg/L	27	26	0.0	0% - 20%
EP2307643-011	0967_SW025_230609	ED045G: Chloride	16887-00-6	1	mg/L	23	24	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5105911)									
EP2307634-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	18	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	19	19	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	99	99	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP2307643-003	0967_SW018_230609	ED093F: Calcium	7440-70-2	1	mg/L	17	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5105912)									
EP2307643-013	0967_SW036_230609	ED093F: Calcium	7440-70-2	1	mg/L	14	14	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	42	42	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EP2307706-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	6	6	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5116356)									
EP2307643-009	0967_SW034_230609	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.24	0.24	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.66	0.63	5.2	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5116356)									
EP2307643-009	0967_SW034_230609	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.08	0.07	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5116356) - continued									
EP2307643-009	0967_SW034_230609	EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5116356)									
EP2307643-009	0967_SW034_230609	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5116356)									
EP2307643-009	0967_SW034_230609	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5116356)									
EP2307643-009	0967_SW034_230609	EP231X: Sum of PFAS	----	0.01	µg/L	1.05	1.01	3.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.90	0.87	3.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.03	0.99	4.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5108420)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	87.8	118
				<1	200 mg/L	103	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5109802)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	111	87.8	118
				<1	200 mg/L	104	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5109813)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	113	87.8	118
				<1	200 mg/L	105	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106124)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	89.9	112
				<1	500 mg/L	101	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5106125)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	102	88.6	113
				<1	1000 mg/L	99.9	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5105911)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	103	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	107	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.6	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.7	84.6	108

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED093F: Dissolved Major Cations (QCLot: 5105912)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	100.0	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	94.4	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	90.4	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5107849)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	113	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	118	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	102	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	105	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	98.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5112635)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	113	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	125	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	88.5	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	89.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	114	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	113	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5116356)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	115	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	97.2	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	110	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	106	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.6	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5116359)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	122	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	113	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	113	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	113	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	129	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	110	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5107849)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5107849) - continued								
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	101	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	97.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	97.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	92.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	96.8	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5112635)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	116	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	116	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	100	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	93.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	113	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.6	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5116356)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	103	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	101	71.0	132

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5116359)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	112	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	107	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	118	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	110	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	102	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	109	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5107849)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	94.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	95.8	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	92.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	109	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	113	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.8	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5112635)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	112	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	102	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	99.9	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	108	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5116356)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5116356) - continued								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	88.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	86.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	101	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5116359)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	89.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	85.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	114	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	116	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	97.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5107849)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	117	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	102	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	130	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	107	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5112635)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	110	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	110	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	100	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5116356)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5116356) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	116	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	85.7	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5116359)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	120	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	113	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	136	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	106	64.2	133
EP231P: PFAS Sums (QCLot: 5107849)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5112635)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5116356)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5116359)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106124)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5106124) - continued							
EP2307643-001	0967_SW015_230609	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	112	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5106125)							
EP2307643-001	0967_SW015_230609	ED045G: Chloride	16887-00-6	1000 mg/L	99.5	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5116356)							
EP2307643-011	0967_SW025_230609	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	103	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	93.5	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	110	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	95.6	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5116356)							
EP2307643-011	0967_SW025_230609	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	106	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	101	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	102	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	105	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	96.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	107	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	92.6	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	81.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	101	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5116356)							
EP2307643-011	0967_SW025_230609	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	91.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	113	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	97.0	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	101	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	102	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	106	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	100	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5116356)							
EP2307643-011	0967_SW025_230609	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	108	63.0	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5116356) - continued							
EP2307643-011	0967_SW025_230609	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	116	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	118	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	90.2	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307643**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 09-Jun-2023
Site	: Pearce SW - JS	Issue Date	: 19-Jun-2023
Sampler	: [redacted]	No. of samples received	: 18
Order number	: pfas-omp Pearce	No. of samples analysed	: 18

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307643--011	0967_SW025_230609	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	30	3.33	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	30	3.33	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
0967_SW015_230609,	0967_SW010_230609,	**09-Jun-2023**	**----**	----	**----**	**15-Jun-2023**	23-Jun-2023	✓
0967_SW018_230609,	0967_SW007_230609,							
0967_SW002_230609,	0967_SW020_230609,							
0967_QC101_230609,	0967_SW032_230609,							
0967_SW034_230609,	0967_SW028_230609,							
0967_SW025_230609,	0967_SW022_230609,							
0967_SW036_230609,	0967_SW038_230609							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
0967_SW015_230609,	0967_SW010_230609,	**09-Jun-2023**	**----**	----	**----**	**19-Jun-2023**	07-Jul-2023	✓
0967_SW018_230609,	0967_SW007_230609,							
0967_SW002_230609,	0967_SW020_230609,							
0967_QC101_230609,	0967_SW032_230609,							
0967_SW034_230609,	0967_SW028_230609,							
0967_SW025_230609,	0967_SW022_230609,							
0967_SW036_230609,	0967_SW038_230609							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW015_230609,	0967_SW010_230609,	**09-Jun-2023**	**----**	----	**----**	**19-Jun-2023**	07-Jul-2023	✓
0967_SW018_230609,	0967_SW007_230609,							
0967_SW002_230609,	0967_SW020_230609,							
0967_QC101_230609,	0967_SW032_230609,							
0967_SW034_230609,	0967_SW028_230609,							
0967_SW025_230609,	0967_SW022_230609,							
0967_SW036_230609,	0967_SW038_230609							
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW015_230609,	0967_SW010_230609,	**09-Jun-2023**	**----**	----	**----**	**16-Jun-2023**	16-Jun-2023	✓
0967_SW018_230609,	0967_SW007_230609,							
0967_SW002_230609,	0967_SW020_230609,							
0967_QC101_230609,	0967_SW032_230609,							
0967_SW034_230609,	0967_SW028_230609,							
0967_SW025_230609,	0967_SW022_230609,							
0967_SW036_230609,	0967_SW038_230609							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW015_230609,	0967_SW010_230609,	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
0967_SW018_230609								
HDPE (no PTFE) (EP231X)								
0967_SW007_230609,	0967_SW002_230609,	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
0967_SW020_230609,	0967_QC101_230609,							
0967_SW032_230609,	0967_SW034_230609,							
0967_SW028_230609,	0967_SW025_230609,							
0967_SW022_230609,	0967_SW036_230609,							
0967_SW038_230609,	0967_QC301_230609,							
0967_QC302_230609,	0967_QC401_230609,							
0967_QC402_230609								

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_SW015_230609, 0967_SW010_230609, 0967_SW018_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
HDPE (no PTFE) (EP231X) 0967_SW007_230609, 0967_SW002_230609, 0967_SW020_230609, 0967_QC101_230609, 0967_SW032_230609, 0967_SW034_230609, 0967_SW028_230609, 0967_SW025_230609, 0967_SW022_230609, 0967_SW036_230609, 0967_SW038_230609, 0967_QC301_230609, 0967_QC302_230609, 0967_QC401_230609, 0967_QC402_230609	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_SW015_230609, 0967_SW010_230609, 0967_SW018_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
HDPE (no PTFE) (EP231X) 0967_SW007_230609, 0967_SW002_230609, 0967_SW020_230609, 0967_QC101_230609, 0967_SW032_230609, 0967_SW034_230609, 0967_SW028_230609, 0967_SW025_230609, 0967_SW022_230609, 0967_SW036_230609, 0967_SW038_230609, 0967_QC301_230609, 0967_QC302_230609, 0967_QC401_230609, 0967_QC402_230609	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_SW015_230609, 0967_SW010_230609, 0967_SW018_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
HDPE (no PTFE) (EP231X) 0967_SW007_230609, 0967_SW002_230609, 0967_SW020_230609, 0967_QC101_230609, 0967_SW032_230609, 0967_SW034_230609, 0967_SW028_230609, 0967_SW025_230609, 0967_SW022_230609, 0967_SW036_230609, 0967_SW038_230609, 0967_QC301_230609, 0967_QC302_230609, 0967_QC401_230609, 0967_QC402_230609	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_SW015_230609, 0967_SW010_230609, 0967_SW018_230609	**09-Jun-2023**	**15-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
HDPE (no PTFE) (EP231X) 0967_SW007_230609, 0967_SW002_230609, 0967_SW020_230609, 0967_QC101_230609, 0967_SW032_230609, 0967_SW034_230609, 0967_SW028_230609, 0967_SW025_230609, 0967_SW022_230609, 0967_SW036_230609, 0967_SW038_230609, 0967_QC301_230609, 0967_QC302_230609, 0967_QC401_230609, 0967_QC402_230609	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	6	54	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	30	**3.33**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	6	54	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	30	**13.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	3	54	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	30	**13.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	30	**3.33**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307643**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 3
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53406	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 09-Jun-2023 12:40	Issue Date	: 12-Jun-2023
Client Requested Due Date	: 19-Jun-2023	Scheduled Reporting Date	: **19-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 11.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 18 / 18

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307643-001	09-Jun-2023 07:57	0967_SW015_230609	✓	✓
EP2307643-002	09-Jun-2023 08:03	0967_SW010_230609	✓	✓
EP2307643-003	09-Jun-2023 08:11	0967_SW018_230609	✓	✓
EP2307643-004	09-Jun-2023 08:23	0967_SW007_230609	✓	✓
EP2307643-005	09-Jun-2023 08:37	0967_SW002_230609	✓	✓
EP2307643-006	09-Jun-2023 08:55	0967_SW020_230609	✓	✓
EP2307643-007	09-Jun-2023 08:57	0967_QC101_230609	✓	✓
EP2307643-008	09-Jun-2023 09:14	0967_SW032_230609	✓	✓
EP2307643-009	09-Jun-2023 09:28	0967_SW034_230609	✓	✓
EP2307643-010	09-Jun-2023 09:45	0967_SW028_230609	✓	✓
EP2307643-011	09-Jun-2023 10:18	0967_SW025_230609	✓	✓
EP2307643-012	09-Jun-2023 10:44	0967_SW022_230609	✓	✓
EP2307643-013	09-Jun-2023 11:20	0967_SW036_230609	✓	✓
EP2307643-014	09-Jun-2023 11:21	0967_SW038_230609	✓	✓
EP2307643-015	09-Jun-2023 11:40	0967_QC301_230609	✓	
EP2307643-016	09-Jun-2023 11:41	0967_QC302_230609	✓	
EP2307643-017	09-Jun-2023 11:38	0967_QC401_230609	✓	
EP2307643-018	09-Jun-2023 11:39	0967_QC402_230609	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]

- A4 - AU Tax Invoice (INV)	Email	[redacted]cardno.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	[redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	[redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	[redacted]esdat.com.au
- Chain of Custody (CoC) (COC)	Email	[redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT)	Email	[redacted]esdat.com.au
- EDI Format - XTab (XTAB)	Email	[redacted]esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	[redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	[redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	[redacted]stantec.com
- Chain of Custody (CoC) (COC)	Email	[redacted]stantec.com
- EDI Format - ESDAT (ESDAT)	Email	[redacted]stantec.com
- EDI Format - XTab (XTAB)	Email	[redacted]stantec.com

CHAIN OF CUSTODY

ALS COC#: 53406 ALS Laboratory: EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	EG DATE TIME: 9/6 @ 1240.	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW015		09/06/2023 07:57 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW010		09/06/2023 08:03 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW018		09/06/2023 08:11 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_SW007		09/06/2023 08:23 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_SW002		09/06/2023 08:37 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW020		09/06/2023 08:55 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_QC101		09/06/2023 08:57 AM	WATER	ALS: 3 Non ALS: 0	No		X		
008	0967_SW032		09/06/2023 09:14 AM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_SW034		09/06/2023 09:28 AM	WATER	ALS: 5 Non ALS: 0	No		X		

Environmental Division Perth

Work Order Reference

EP2307643

Telephone : +61-8-9406 1301

CHAIN OF CUSTODY

ALS COC#: 53406 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW028		09/06/2023 09:45 AM	WATER	ALS: 3 Non ALS: 0	No		X		
011	0967_SW025		09/06/2023 10:18 AM	WATER	ALS: 5 Non ALS: 0	No		X		
012	0967_SW022		09/06/2023 10:44 AM	WATER	ALS: 5 Non ALS: 0	No		X		
013	0967_SW036		09/06/2023 11:20 AM	WATER	ALS: 3 Non ALS: 0	No		X		
014	0967_SW038		09/06/2023 11:21 AM	WATER	ALS: 3 Non ALS: 0	No		X		
015	0967_QC301		09/06/2023 11:40 AM	WATER	ALS: 2 Non ALS: 0	No	X			
016	0967_QC302		09/06/2023 11:41 AM	WATER	ALS: 2 Non ALS: 0	No	X			
017	0967_QC401		09/06/2023 11:38 AM	WATER	ALS: 2 Non ALS: 0	No	X			
018	0967_QC402		09/06/2023 11:39 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

(ALS) COC#: 53406 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522068227	Green	No	
001	0967_SW015	HDPE (no PTFE)	20 mL	00350822086397	Grey	No	
001	0967_SW015	HDPE (no PTFE)	20 mL	00350822062596	Grey	No	
002	0967_SW010	HDPE (no PTFE)	20 mL	00350822062583	Grey	No	
002	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522068420	Green	No	
002	0967_SW010	HDPE (no PTFE)	20 mL	00350822062510	Grey	No	
003	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522068368	Green	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062466	Grey	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062410	Grey	No	
004	0967_SW007	HDPE (no PTFE)	20 mL	00350822062620	Grey	No	
004	0967_SW007	HDPE (no PTFE)	20 mL	00350822062558	Grey	No	
004	0967_SW007	Clear Plastic Bottle - Natural	125 mL	00070522067232	Green	No	
005	0967_SW002	HDPE (no PTFE)	20 mL	00350822062671	Grey	No	
005	0967_SW002	HDPE (no PTFE)	20 mL	00350822062585	Grey	No	
005	0967_SW002	Clear Plastic Bottle - Natural	125 mL	00070522067169	Green	No	
006	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070522068415	Green	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822086377	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062676	Grey	No	
007	0967_QC101	HDPE (no PTFE)	20 mL	00350822082667	Grey	No	
007	0967_QC101	HDPE (no PTFE)	20 mL	00350822082738	Grey	No	
007	0967_QC101	Clear Plastic Bottle - Natural	125 mL	00070522068418	Green	No	
008	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522067160	Green	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062411	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062488	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062561	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822086378	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 53406 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522068424	Green	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062496	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062651	Grey	No	
010	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522068212	Green	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062452	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822086382	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822082776	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822082839	Grey	No	
011	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522068219	Green	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062462	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822086395	Grey	No	
012	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522068299	Green	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822083251	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822083223	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822086392	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062436	Grey	No	
013	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522068257	Green	No	
013	0967_SW036	HDPE (no PTFE)	20 mL	00350822082635	Grey	No	
013	0967_SW036	HDPE (no PTFE)	20 mL	00350822082676	Grey	No	
014	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522067106	Green	No	
014	0967_SW038	HDPE (no PTFE)	20 mL	00350822082688	Grey	No	
014	0967_SW038	HDPE (no PTFE)	20 mL	00350822082746	Grey	No	
015	0967_QC301	HDPE (no PTFE)	20 mL	00350822062613	Grey	No	
015	0967_QC301	HDPE (no PTFE)	20 mL	00350822062660	Grey	No	
016	0967_QC302	HDPE (no PTFE)	20 mL	00350822062408	Grey	No	
016	0967_QC302	HDPE (no PTFE)	20 mL	00350822062592	Grey	No	
017	0967_QC401	HDPE (no PTFE)	20 mL	00352208019945	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: 53406 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

017	0967_QC401	HDPE (no PTFE)	20 mL	00352208019775	Grey	No	
018	0967_QC402	HDPE (no PTFE)	20 mL	00352208019713	Grey	No	
018	0967_QC402	HDPE (no PTFE)	20 mL	00352208019818	Grey	No	

Total Bottle Count: ALS: 56, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307674**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Jun-2023
C-O-C number	: 53424	Issue Date	: 22-Jun-2023 17:03
Sampler	: [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: High failing matrix spike for some analytes due to possible sample heterogeneity, confirmed by visual inspection.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230610	0967_SD007_230610	0967_SD015_230610	0967_SD020_230610	0967_SD032_230610
				Sampling date / time	10-Jun-2023 07:36	10-Jun-2023 07:51	10-Jun-2023 08:15	10-Jun-2023 08:27	10-Jun-2023 08:41
Compound	CAS Number	LOR	Unit		EP2307674-001	EP2307674-002	EP2307674-003	EP2307674-004	EP2307674-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**23.5**	**39.4**	**17.4**	**25.4**	**40.0**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	**0.0028**	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	**0.0048**	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0004**	**0.0685**	**0.0005**	**0.0004**	**0.0003**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0136**	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0135**	**2.11**	**0.0116**	**0.0234**	**0.0059**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.0234**	**0.0007**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	**0.001**	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	**0.0018**	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0060**	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	**0.0012**	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	**0.0053**	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	**0.0008**	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0003**	**0.0012**	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.0005**	**0.0015**	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0004**	**0.0026**	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	**0.0011**	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	**0.0010**	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.0257**	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD002_230610	0967_SD007_230610	0967_SD015_230610	0967_SD020_230610	0967_SD032_230610
			Sampling date / time	10-Jun-2023 07:36	10-Jun-2023 07:51	10-Jun-2023 08:15	10-Jun-2023 08:27	10-Jun-2023 08:41
Compound	CAS Number	LOR	Unit	EP2307674-001	EP2307674-002	EP2307674-003	EP2307674-004	EP2307674-005
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	**0.0008**	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	**0.0009**	**0.0028**	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0160**	**2.28**	**0.0128**	**0.0238**	**0.0062**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0139**	**2.18**	**0.0121**	**0.0238**	**0.0062**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0148**	**2.20**	**0.0121**	**0.0238**	**0.0062**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**98.5**	**87.0**	**102**	**119**	**112**
13C8-PFOA	----	0.0002	%	**103**	**121**	**104**	**104**	**110**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD034_230610	0967_SD028_230610	0967_SD022_230610	0967_SD025_230610	0967_SD060_230610
				Sampling date / time	10-Jun-2023 08:53	10-Jun-2023 09:07	10-Jun-2023 10:00	10-Jun-2023 09:46	10-Jun-2023 10:42
Compound	CAS Number	LOR	Unit		EP2307674-006	EP2307674-007	EP2307674-008	EP2307674-009	EP2307674-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**9.0**	**20.5**	**20.8**	**42.4**	**18.6**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0004**	**0.0007**	**0.0027**	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0069**	**0.0078**	**0.0054**	**0.0553**	**0.0010**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0006**	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	**0.0002**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD034_230610	0967_SD028_230610	0967_SD022_230610	0967_SD025_230610	0967_SD060_230610
				Sampling date / time	10-Jun-2023 08:53	10-Jun-2023 09:07	10-Jun-2023 10:00	10-Jun-2023 09:46	10-Jun-2023 10:42
Compound	CAS Number	LOR	Unit		EP2307674-006	EP2307674-007	EP2307674-008	EP2307674-009	EP2307674-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0075**	**0.0082**	**0.0063**	**0.0583**	**0.0010**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0069**	**0.0082**	**0.0061**	**0.0580**	**0.0010**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0069**	**0.0082**	**0.0063**	**0.0580**	**0.0010**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**85.5**	**106**	**102**	**112**	**104**
13C8-PFOA	----	0.0002	%		**110**	**101**	**98.5**	**96.5**	**106**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0967_QC106_230610	0967_SD058_230610	----	----	----
				Sampling date / time	10-Jun-2023 08:28	10-Jun-2023 10:42	----	----	----
Compound	CAS Number	LOR	Unit		EP2307674-011	EP2307674-012	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**24.0**	**23.7**	**----**	**----**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0006**	<0.0002	**----**	**----**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0136**	**0.0007**	**----**	**----**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	**----**	**----**	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	**----**	**----**	**----**
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	**----**	**----**	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	0967_QC106_230610	0967_SD058_230610	----	----	----
				Sampling date / time	10-Jun-2023 08:28	10-Jun-2023 10:42	----	----	----
Compound	CAS Number	LOR	Unit		EP2307674-011	EP2307674-012	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0142**	**0.0007**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0142**	**0.0007**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0142**	**0.0007**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**97.0**	**110**	----	----	----
13C8-PFOA	----	0.0002	%		**104**	**102**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307674**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Jun-2023
C-O-C number	: 53424	Issue Date	: 22-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5119531)									
EP2307674-001	0967_SD002_230610	EA055: Moisture Content	----	0.1	%	23.5	24.1	2.7	0% - 20%
EP2307674-010	0967_SD060_230610	EA055: Moisture Content	----	0.1	%	18.6	19.5	4.5	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115439)									
EP2307672-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307672-023	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115441)									
EP2307674-008	0967_SD022_230610	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0007	0.0006	17.1	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0054	0.0052	3.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307716-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115441) - continued									
EP2307716-006	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0014	0.0014	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0224	0.0190	16.4	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115439)									
EP2307672-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307672-023	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115441)									
EP2307674-008	0967_SD022_230610	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307716-006	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115441) - continued									
EP2307716-006	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115439)									
EP2307672-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307672-023	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115441)									
EP2307674-008	0967_SD022_230610	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115441) - continued									
EP2307674-008	0967_SD022_230610	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307716-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115439)									
EP2307672-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307672-023	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115441)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115441) - continued									
EP2307674-008	0967_SD022_230610	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307716-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115439)									
EP2307672-002	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
EP2307672-023	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115441)									
EP2307674-008	0967_SD022_230610	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0063	0.0058	8.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0061	0.0058	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0063	0.0058	8.3	0% - 20%
EP2307716-006	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115439)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	106	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	105	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	85.3	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	97.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	78.8	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115441)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	123	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	118	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	100	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	112	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	107	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	112	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115439)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	111	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	80.0	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	104	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115441)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	125	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	71.0	131

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115441) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	109	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115439)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115441)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	138	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	121	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115439)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	115	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	118	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	119	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	79.6	54.8	124

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115441)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	122	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	136	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	125	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	122	54.8	124
EP231P: PFAS Sums (QCLot: 5115439)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231P: PFAS Sums (QCLot: 5115441)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115439)							
EP2307672-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	117	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	108	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	97.8	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	96.2	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	102	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	112	59.0	134
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115441)							
EP2307674-009	0967_SD025_230610	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	124	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	# 136	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# 144	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	121	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	115	59.0	134

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115439)							
EP2307672-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	90.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	112	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	104	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	106	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	108	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	101	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	113	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	84.4	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	103	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	103	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	103	69.0	133
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115441)							
EP2307674-009	0967_SD025_230610	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	126	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	112	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	99.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	107	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	109	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.2	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.7	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	93.5	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115439)							
EP2307672-006	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	110	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	106	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	99.0	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	113	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	104	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	112	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	115	61.0	139
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115441)							
EP2307674-009	0967_SD025_230610	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	110	48.0	128

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115441) - continued							
EP2307674-009	0967_SD025_230610	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	129	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	84.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	102	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	105	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115439)							
EP2307672-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	120	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	118	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	119	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	97.9	60.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115441)							
EP2307674-009	0967_SD025_230610	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	119	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	112	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	114	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	109	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307674**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SD - ah	Issue Date	: 22-Jun-2023
Sampler	: [redacted]	No. of samples received	: 12
Order number	: pfas-omp Pearce	No. of samples analysed	: 12

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	0967_SD025_230610	**Perfluoropentane sulfonic acid (PFPeS)**	2706-91-4	136 %	73.0-123%	**Recovery greater than upper data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	0967_SD025_230610	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	144 %	67.0-130%	**Recovery greater than upper data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	0967_SD025_230610	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610, 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**----**	----	**----**	**19-Jun-2023**	24-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	29-Jul-2023	✓
HDPE Soil Jar (EP231X) 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	29-Jul-2023	✓
HDPE Soil Jar (EP231X) 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	29-Jul-2023	✓
HDPE Soil Jar (EP231X) 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	29-Jul-2023	✓
HDPE Soil Jar (EP231X) 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) 0967_SD002_230610, 0967_SD007_230610, 0967_SD015_230610, 0967_SD020_230610, 0967_SD032_230610, 0967_SD034_230610, 0967_SD028_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	29-Jul-2023	✓
HDPE Soil Jar (EP231X) 0967_SD022_230610, 0967_SD025_230610, 0967_SD060_230610, 0967_QC106_230610, 0967_SD058_230610	**10-Jun-2023**	**19-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307674**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53424	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 13-Jun-2023
Client Requested Due Date	: 22-Jun-2023	Scheduled Reporting Date	: **22-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307674-001	10-Jun-2023 07:36	0967_SD002_230610	✓	✓
EP2307674-002	10-Jun-2023 07:51	0967_SD007_230610	✓	✓
EP2307674-003	10-Jun-2023 08:15	0967_SD015_230610	✓	✓
EP2307674-004	10-Jun-2023 08:27	0967_SD020_230610	✓	✓
EP2307674-005	10-Jun-2023 08:41	0967_SD032_230610	✓	✓
EP2307674-006	10-Jun-2023 08:53	0967_SD034_230610	✓	✓
EP2307674-007	10-Jun-2023 09:07	0967_SD028_230610	✓	✓
EP2307674-008	10-Jun-2023 10:00	0967_SD022_230610	✓	✓
EP2307674-009	10-Jun-2023 09:46	0967_SD025_230610	✓	✓
EP2307674-010	10-Jun-2023 10:42	0967_SD060_230610	✓	✓
EP2307674-011	10-Jun-2023 08:28	0967_QC106_230610	✓	✓
EP2307674-012	10-Jun-2023 10:42	0967_SD058_230610	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) Email [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au
- EDI Format - XTab (XTAB) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307674

Telephone . - 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PEASOTR 23 **Client:** Stantec **Project Manager** [redacted]

53424 53428 53427

ALS Compass COC Reference: 53425 **# Samples:** _____ **Phone:** [redacted]

Sampler: _____

Phone: [redacted]

Turnaround Requirements: Standard _____ _____

Special Instructions:

Custody:

Relinquished by: STANTEC	Received by:	Relinquished by:	Received by:
Date / Time: 12/06/23 7AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53424 ALS Laboratory: EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD002		10/06/2023 07:36 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD007		10/06/2023 07:51 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD015		10/06/2023 08:15 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD020		10/06/2023 08:27 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD032		10/06/2023 08:41 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD034		10/06/2023 08:53 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD028		10/06/2023 09:07 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD022		10/06/2023 10:00 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_SD025		10/06/2023 09:46 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53424 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SD060		10/06/2023 10:42 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
011	0967_QC106		10/06/2023 08:28 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
012	0967_SD058		10/06/2023 10:42 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53424 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: S17139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD002	HDPE Soil Jar	200 mL	00621122079173	Grey	No	
002	0967_SD007	HDPE Soil Jar	200 mL	00621122079844	Grey	No	
003	0967_SD015	HDPE Soil Jar	200 mL	00620322054392	Grey	No	
004	0967_SD020	HDPE Soil Jar	200 mL	00621122079847	Grey	No	
005	0967_SD032	HDPE Soil Jar	200 mL	00621122106308	Grey	No	
006	0967_SD034	HDPE Soil Jar	200 mL	00621122079793	Grey	No	
007	0967_SD028	HDPE Soil Jar	200 mL	00621122079804	Grey	No	
008	0967_SD022	HDPE Soil Jar	200 mL	00621122106258	Grey	No	
009	0967_SD025	HDPE Soil Jar	200 mL	00621122079815	Grey	No	
010	0967_SD060	HDPE Soil Jar	200 mL	00621122079817	Grey	No	
011	0967_QC106	HDPE Soil Jar	200 mL	00621122079776	Grey	No	
012	0967_SD058	HDPE Soil Jar	200 mL	00621122079846	Grey	No	

Total Bottle Count: ALS: 12, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307675**	Page	: 1 of 12
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53425	Issue Date	: 23-Jun-2023 17:22
Sampler	: [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230610	0967_SW007_230610	0967_SW010_230610	0967_SW015_230610	0967_SW018_230610
				Sampling date / time	10-Jun-2023 07:37	10-Jun-2023 07:51	10-Jun-2023 08:08	10-Jun-2023 08:15	10-Jun-2023 08:01
Compound	CAS Number	LOR	Unit		EP2307675-001	EP2307675-002	EP2307675-003	EP2307675-004	EP2307675-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		203	191	36	36	124
Total Alkalinity as CaCO3	----	1	mg/L		203	191	36	36	124
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		41	29	13	11	22
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		281	47	32	28	43
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		28	51	13	12	35
Magnesium	7439-95-4	1	mg/L		11	5	3	3	4
Sodium	7440-23-5	1	mg/L		254	43	25	22	44
Potassium	7440-09-7	1	mg/L		16	6	6	4	7
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		12.8	5.74	1.89	1.74	4.15
ø Total Cations	----	0.01	meq/L		13.8	4.98	2.14	1.90	4.17
ø Ionic Balance	----	0.01	%		3.47	7.14	6.05	4.58	0.24
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.02	4.75	1.63	1.38	0.06
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.03	4.61	1.70	1.67	0.06
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.20	51.2	10.2	10.7	0.50
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	6.91	0.49	0.47	0.03
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.72	199	19.6	15.2	0.96
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	0.77	0.05	0.03	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	2.4	1.1	0.9	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.03	3.88	1.13	1.02	0.04
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	18.0	4.50	3.83	0.12

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230610	0967_SW007_230610	0967_SW010_230610	0967_SW015_230610	0967_SW018_230610
				Sampling date / time	10-Jun-2023 07:37	10-Jun-2023 07:51	10-Jun-2023 08:08	10-Jun-2023 08:15	10-Jun-2023 08:01
Compound	CAS Number	LOR	Unit		EP2307675-001	EP2307675-002	EP2307675-003	EP2307675-004	EP2307675-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	**1.80**	**0.36**	**0.34**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.05**	**4.42**	**0.75**	**0.74**	**0.02**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.11**	**0.03**	**0.03**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	**0.06**	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	**0.05**	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	**0.07**	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	**0.02**	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	**1.59**	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.59**	**0.46**	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		**0.06**	**0.34**	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230610	0967_SW007_230610	0967_SW010_230610	0967_SW015_230610	0967_SW018_230610
				Sampling date / time	10-Jun-2023 07:37	10-Jun-2023 07:51	10-Jun-2023 08:08	10-Jun-2023 08:15	10-Jun-2023 08:01
Compound	CAS Number	LOR	Unit		EP2307675-001	EP2307675-002	EP2307675-003	EP2307675-004	EP2307675-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.83**	**300**	**41.5**	**36.3**	**1.79**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.92**	**250**	**29.8**	**25.9**	**1.46**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.80**	**286**	**39.3**	**34.1**	**1.70**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.2**	**102**	**91.2**	**84.8**	**83.8**
13C8-PFOA	----	0.02	%		**95.2**	**98.6**	**96.0**	**97.6**	**97.1**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230610	0967_SW032_230610	0967_SW034_230610	0967_SW025_230610	0967_SW022_230610
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 08:40	10-Jun-2023 08:53	10-Jun-2023 09:44	10-Jun-2023 09:59
Compound	CAS Number	LOR	Unit		EP2307675-006	EP2307675-007	EP2307675-008	EP2307675-010	EP2307675-011
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		118	90	76	38	80
Total Alkalinity as CaCO3	----	1	mg/L		118	90	76	38	80
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		18	26	15	12	49
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		34	51	26	28	272
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		34	27	24	12	39
Magnesium	7439-95-4	1	mg/L		4	6	4	3	22
Sodium	7440-23-5	1	mg/L		37	44	26	24	175
Potassium	7440-09-7	1	mg/L		8	6	4	2	7
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		3.69	3.78	2.56	1.80	10.3
ø Total Cations	----	0.01	meq/L		3.84	3.91	2.76	1.94	11.5
ø Ionic Balance	----	0.01	%		1.97	1.69	3.68	3.79	5.75
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.04	0.03	0.40	0.04	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.05	0.02	0.40	0.05	0.03
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.38	0.25	3.33	0.72	0.26
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	0.14	0.04	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.69	0.50	6.16	2.87	0.40
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	0.2	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.02	<0.02	0.25	<0.02	0.17
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	0.06	1.00	0.06	0.16

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230610	0967_SW032_230610	0967_SW034_230610	0967_SW025_230610	0967_SW022_230610
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 08:40	10-Jun-2023 08:53	10-Jun-2023 09:44	10-Jun-2023 09:59
Compound	CAS Number	LOR	Unit		EP2307675-006	EP2307675-007	EP2307675-008	EP2307675-010	EP2307675-011
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.09**	<0.02	**0.04**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.01**	**0.20**	**0.02**	**0.02**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**0.14**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230610	0967_SW032_230610	0967_SW034_230610	0967_SW025_230610	0967_SW022_230610
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 08:40	10-Jun-2023 08:53	10-Jun-2023 09:44	10-Jun-2023 09:59
Compound	CAS Number	LOR	Unit		EP2307675-006	EP2307675-007	EP2307675-008	EP2307675-010	EP2307675-011
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.28**	**0.87**	**12.2**	**3.80**	**1.25**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.07**	**0.75**	**9.49**	**3.59**	**0.66**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.23**	**0.85**	**11.6**	**3.71**	**1.22**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**85.6**	**89.7**	**86.8**	**84.1**	**86.9**
13C8-PFOA	----	0.02	%		**95.6**	**95.6**	**95.3**	**95.4**	**95.0**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC105_230610	0967_SW060_230610	0967_SW058_230610	----	----
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 10:40	10-Jun-2023 10:40	----	----
Compound	CAS Number	LOR	Unit		EP2307675-012	EP2307675-013	EP2307675-014	--------	--------
					Result	Result	Result	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**118**	**105**	**100**	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**118**	**105**	**100**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**18**	**58**	**46**	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**34**	**112**	**108**	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**32**	**54**	**53**	----	----
Magnesium	7439-95-4	1	mg/L		**4**	**10**	**11**	----	----
Sodium	7440-23-5	1	mg/L		**38**	**74**	**62**	----	----
Potassium	7440-09-7	1	mg/L		**8**	**16**	**16**	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**3.69**	**6.46**	**6.00**	----	----
ø **Total Cations**	----	0.01	meq/L		**3.78**	**7.14**	**6.66**	----	----
ø **Ionic Balance**	----	0.01	%		**1.23**	**5.00**	**5.16**	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.38**	**0.02**	**0.02**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.02**	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.68**	**0.03**	**0.02**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.02**	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.08**	<0.02	<0.02	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC105_230610	0967_SW060_230610	0967_SW058_230610	----	----
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 10:40	10-Jun-2023 10:40	----	----
Compound	CAS Number	LOR	Unit		EP2307675-012	EP2307675-013	EP2307675-014	--------	--------
					Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC105_230610	0967_SW060_230610	0967_SW058_230610	----	----
				Sampling date / time	10-Jun-2023 08:25	10-Jun-2023 10:40	10-Jun-2023 10:40	----	----
Compound	CAS Number	LOR	Unit		EP2307675-012	EP2307675-013	EP2307675-014	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	**----**	**----**
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.28**	**0.05**	**0.04**	**----**	**----**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.06**	**0.05**	**0.04**	**----**	**----**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.22**	**0.05**	**0.04**	**----**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.8**	**94.5**	**85.4**	**----**	**----**
13C8-PFOA	----	0.02	%		**93.1**	**98.3**	**95.0**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307675**	Page	: 1 of 8
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53425	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
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General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5112907)									
EP2307590-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	131	131	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	131	131	0.0	0% - 20%
EP2307592-006	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	124	124	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	124	124	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5113780)									
EP2307675-004	0967_SW015_230610	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	36	37	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	36	37	0.0	0% - 20%
EP2307676-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	94	94	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	94	94	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111216)									
EP2307675-001	0967_SW002_230610	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	41	41	0.0	0% - 20%
EP2307859-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	80000	80000	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111219)									
EP2307675-010	0967_SW025_230610	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	12	12	0.0	0% - 50%
EP2307715-006	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	14	15	0.0	0% - 50%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED045G: Chloride by Discrete Analyser (QC Lot: 5111217)									
EP2307675-001	0967_SW002_230610	ED045G: Chloride	16887-00-6	1	mg/L	281	280	0.5	0% - 20%
EP2307859-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	4600	4630	0.7	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111221)									
EP2307675-010	0967_SW025_230610	ED045G: Chloride	16887-00-6	1	mg/L	28	26	6.3	0% - 20%
EP2307715-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	28	28	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5110596)									
EP2307675-001	0967_SW002_230610	ED093F: Calcium	7440-70-2	1	mg/L	28	27	3.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	254	252	0.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
EP2307675-012	0967_QC105_230610	ED093F: Calcium	7440-70-2	1	mg/L	32	31	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	4	4	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125772) - continued									
EP2307715-014	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5112907)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	97.5	87.8	118
				<1	200 mg/L	97.6	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5113780)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	93.5	87.8	118
				<1	200 mg/L	97.7	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111216)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	105	89.9	112
				<1	500 mg/L	102	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.7	89.9	112
				<1	500 mg/L	98.2	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5111217)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	99.6	88.6	113
				<1	1000 mg/L	96.4	88.6	113
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	104	88.6	113
				<1	1000 mg/L	93.9	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5110596)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.0	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.1	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	107	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	93.3	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125772)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125772) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	113	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	106	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125782)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.1	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.3	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125772)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	106	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	101	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125782)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	109	69.0	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125782) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	103	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125772)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	122	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	99.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	114	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125782)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	115	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	107	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	119	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125772)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	108	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	114	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	100	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125782)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	102	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125782) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	104	64.2	133
EP231P: PFAS Sums (QCLot: 5125772)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125782)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111216)							
EP2307675-001	0967_SW002_230610	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	111	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)							
EP2307675-010	0967_SW025_230610	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	110	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111217)							
EP2307675-001	0967_SW002_230610	ED045G: Chloride	16887-00-6	1000 mg/L	91.0	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)							
EP2307675-010	0967_SW025_230610	ED045G: Chloride	16887-00-6	1000 mg/L	95.5	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307675**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SW - ah	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 13
Order number	: pfas-omp Pearce	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	30	3.33	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	30	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**----**	----	**----**	**15-Jun-2023**	24-Jun-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610	**10-Jun-2023**	**----**	----	**----**	**21-Jun-2023**	08-Jul-2023	✓
Clear Plastic Bottle - Natural (ED041G)							
0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**----**	----	**----**	**23-Jun-2023**	08-Jul-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610	**10-Jun-2023**	**----**	----	----	**21-Jun-2023**	08-Jul-2023	✓
Clear Plastic Bottle - Natural (ED045G)							
0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**----**	----	----	**23-Jun-2023**	08-Jul-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**----**	----	----	**15-Jun-2023**	17-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**21-Jun-2023**	07-Dec-2023	✓	**23-Jun-2023**	07-Dec-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**21-Jun-2023**	07-Dec-2023	✓	**23-Jun-2023**	07-Dec-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**21-Jun-2023**	07-Dec-2023	✓	**23-Jun-2023**	07-Dec-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**21-Jun-2023**	07-Dec-2023	✓	**23-Jun-2023**	07-Dec-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW002_230610, 0967_SW007_230610, 0967_SW010_230610, 0967_SW015_230610, 0967_SW018_230610, 0967_SW020_230610, 0967_SW032_230610, 0967_SW034_230610, 0967_SW025_230610, 0967_SW022_230610, 0967_QC105_230610, 0967_SW060_230610, 0967_SW058_230610	**10-Jun-2023**	**21-Jun-2023**	07-Dec-2023	✓	**23-Jun-2023**	07-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	30	**3.33**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	30	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307675**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53425	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307675-001	10-Jun-2023 07:37	0967_SW002_230610	✓	✓
EP2307675-002	10-Jun-2023 07:51	0967_SW007_230610	✓	✓
EP2307675-003	10-Jun-2023 08:08	0967_SW010_230610	✓	✓
EP2307675-004	10-Jun-2023 08:15	0967_SW015_230610	✓	✓
EP2307675-005	10-Jun-2023 08:01	0967_SW018_230610	✓	✓
EP2307675-006	10-Jun-2023 08:25	0967_SW020_230610	✓	✓
EP2307675-007	10-Jun-2023 08:40	0967_SW032_230610	✓	✓
EP2307675-008	10-Jun-2023 08:53	0967_SW034_230610	✓	✓
EP2307675-010	10-Jun-2023 09:44	0967_SW025_230610	✓	✓
EP2307675-011	10-Jun-2023 09:59	0967_SW022_230610	✓	✓
EP2307675-012	10-Jun-2023 08:25	0967_QC105_230610	✓	✓
EP2307675-013	10-Jun-2023 10:40	0967_SW060_230610	✓	✓
EP2307675-014	10-Jun-2023 10:40	0967_SW058_230610	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307675

Telephone - 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMR_23 **Client:** Stantec **Project Manager:** [redacted]

53424 53428 53427

ALS Compass COC Reference: 53425 **# Samples:** _____ **Sampler:** [redacted]

Phone: [redacted)

Turnaround Requirements: (Standard) _____ _____

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
STANTEC			
Date / Time: 12/06/23 7AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53425 ALS Laboratory: EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW002		10/06/2023 07:37 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW007		10/06/2023 07:51 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW010		10/06/2023 08:08 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_SW015		10/06/2023 08:15 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW018		10/06/2023 08:01 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_SW020		10/06/2023 08:25 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_SW032		10/06/2023 08:40 AM	WATER	ALS: 3 Non ALS: 0	No	X		
008	0967_SW034		10/06/2023 08:53 AM	WATER	ALS: 3 Non ALS: 0	No	X		
009	0967_SW028		10/06/2023 09:06 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53425 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW025		10/06/2023 09:44 AM	WATER	ALS: 3 Non ALS: 0	No	X		
011	0967_SW022		10/06/2023 09:59 AM	WATER	ALS: 3 Non ALS: 0	No	X		
012	0967_QC105		10/06/2023 08:25 AM	WATER	ALS: 3 Non ALS: 0	No	X		
013	0967_SW060		10/06/2023 10:40 AM	WATER	ALS: 3 Non ALS: 0	No	X		
014	0967_SW058		10/06/2023 10:40 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 53425 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW002	Clear Plastic Bottle - Natural	125 mL	00070522068303	Green	No	
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822062423	Grey	No	
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822062463	Grey	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822062617	Grey	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822062640	Grey	No	
002	0967_SW007	Clear Plastic Bottle - Natural	125 mL	00070522068273	Green	No	
003	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522068426	Green	No	
003	0967_SW010	HDPE (no PTFE)	20 mL	00350822062603	Grey	No	
003	0967_SW010	HDPE (no PTFE)	20 mL	00350822062564	Grey	No	
004	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522068292	Green	No	
004	0967_SW015	HDPE (no PTFE)	20 mL	00350822062424	Grey	No	
004	0967_SW015	HDPE (no PTFE)	20 mL	00350822062570	Grey	No	
005	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522068335	Green	No	
005	0967_SW018	HDPE (no PTFE)	20 mL	00350822062669	Grey	No	
005	0967_SW018	HDPE (no PTFE)	20 mL	00350822062454	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822086385	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062573	Grey	No	
006	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070522068287	Green	No	
007	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522068278	Green	No	
007	0967_SW032	HDPE (no PTFE)	20 mL	00350822062562	Grey	No	
007	0967_SW032	HDPE (no PTFE)	20 mL	00350822062611	Grey	No	
008	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522068321	Green	No	
008	0967_SW034	HDPE (no PTFE)	20 mL	00350822062514	Grey	No	
008	0967_SW034	HDPE (no PTFE)	20 mL	00350822062433	Grey	No	
009	0967_SW028	HDPE (no PTFE)	20 mL	00350822083337	Grey	No	
009	0967_SW028	HDPE (no PTFE)	20 mL	00350822083231	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 53425 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522068195	Green	No	
010	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522068329	Green	No	
010	0967_SW025	HDPE (no PTFE)	20 mL	00350822062442	Grey	No	
010	0967_SW025	HDPE (no PTFE)	20 mL	00350822062616	Grey	No	
011	0967_SW022	HDPE (no PTFE)	20 mL	00350822062652	Grey	No	
011	0967_SW022	HDPE (no PTFE)	20 mL	00350822062473	Grey	No	
011	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522068384	Green	No	
012	0967_QC105	HDPE (no PTFE)	20 mL	00350822062431	Grey	No	
012	0967_QC105	HDPE (no PTFE)	20 mL	00350822062599	Grey	No	
012	0967_QC105	Clear Plastic Bottle - Natural	125 mL	00070522068285	Green	No	
013	0967_SW060	Clear Plastic Bottle - Natural	125 mL	00070522067372	Green	No	
013	0967_SW060	HDPE (no PTFE)	20 mL	00350822082630	Grey	No	
013	0967_SW060	HDPE (no PTFE)	20 mL	00350822082671	Grey	No	
014	0967_SW058	Clear Plastic Bottle - Natural	125 mL	00070522054704	Green	No	
014	0967_SW058	HDPE (no PTFE)	20 mL	00350822083439	Grey	No	
014	0967_SW058	HDPE (no PTFE)	20 mL	00350822083350	Grey	No	

Total Bottle Count: ALS: 42, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307676**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53427	Issue Date	: 22-Jun-2023 17:11
Sampler	: [redacted]		
Site	: Pearce SW - MB		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230610	0967_QC302_230610	0967_QC401_230610	0967_QC402_230610	----
				Sampling date / time	10-Jun-2023 11:14	10-Jun-2023 11:15	10-Jun-2023 11:16	10-Jun-2023 11:16	----
Compound	CAS Number	LOR	Unit		EP2307676-008	EP2307676-009	EP2307676-010	EP2307676-011	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230610	0967_QC302_230610	0967_QC401_230610	0967_QC402_230610	----
				Sampling date / time	10-Jun-2023 11:14	10-Jun-2023 11:15	10-Jun-2023 11:16	10-Jun-2023 11:16	----
Compound	CAS Number	LOR	Unit		EP2307676-008	EP2307676-009	EP2307676-010	EP2307676-011	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.0**	**98.9**	**90.5**	**94.1**	----
13C8-PFOA	----	0.02	%		**100**	**99.3**	**100**	**98.9**	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230610	0967_SW066_230610	0967_SW048_230610	0967_QC108_230610	0967_SW038_230610
				Sampling date / time	10-Jun-2023 07:50	10-Jun-2023 08:48	10-Jun-2023 09:32	10-Jun-2023 09:33	10-Jun-2023 10:02
Compound	CAS Number	LOR	Unit		EP2307676-001	EP2307676-002	EP2307676-003	EP2307676-004	EP2307676-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**40**	**94**	**44**	----	**68**
Total Alkalinity as CaCO3	----	1	mg/L		**40**	**94**	**44**	----	**68**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**69**	**35**	**108**	----	**31**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**190**	**168**	**495**	----	**70**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**20**	**31**	**33**	----	**18**
Magnesium	7439-95-4	1	mg/L		**19**	**15**	**40**	----	**6**
Sodium	7440-23-5	1	mg/L		**128**	**116**	**342**	----	**53**
Potassium	7440-09-7	1	mg/L		**8**	**6**	**14**	----	**6**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**7.60**	**7.34**	**17.1**	----	**3.98**
ø Total Cations	----	0.01	meq/L		**8.33**	**7.98**	**20.2**	----	**3.85**
ø Ionic Balance	----	0.01	%		**4.64**	**4.14**	**8.27**	----	**1.63**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	**0.05**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	**0.04**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.21**	<0.01	**0.13**	**0.13**	**0.40**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.40**	<0.01	**0.26**	**0.26**	**0.80**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.03**	<0.02	**0.03**	**0.03**	**0.02**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.07**	<0.02	**0.04**	**0.04**	**0.10**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230610	0967_SW066_230610	0967_SW048_230610	0967_QC108_230610	0967_SW038_230610
				Sampling date / time	10-Jun-2023 07:50	10-Jun-2023 08:48	10-Jun-2023 09:32	10-Jun-2023 09:33	10-Jun-2023 10:02
Compound	CAS Number	LOR	Unit		EP2307676-001	EP2307676-002	EP2307676-003	EP2307676-004	EP2307676-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	<0.01	<0.01	**0.02**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230610	0967_SW066_230610	0967_SW048_230610	0967_QC108_230610	0967_SW038_230610
				Sampling date / time	10-Jun-2023 07:50	10-Jun-2023 08:48	10-Jun-2023 09:32	10-Jun-2023 09:33	10-Jun-2023 10:02
Compound	CAS Number	LOR	Unit		EP2307676-001	EP2307676-002	EP2307676-003	EP2307676-004	EP2307676-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.77**	<0.01	**0.46**	**0.46**	**1.43**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.61**	<0.01	**0.39**	**0.39**	**1.20**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.75**	<0.01	**0.46**	**0.46**	**1.39**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.9**	**87.5**	**86.9**	**96.3**	**92.7**
13C8-PFOA	----	0.02	%		**102**	**94.9**	**95.8**	**94.3**	**102**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW036_230610	0967_SW055_230610	----	----	----
				Sampling date / time	10-Jun-2023 10:03	10-Jun-2023 11:04	----	----	----
Compound	CAS Number	LOR	Unit		EP2307676-006	EP2307676-007	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**69**	**35**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**69**	**35**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**30**	**67**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**68**	**127**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**18**	**27**	----	----	----
Magnesium	7439-95-4	1	mg/L		**6**	**12**	----	----	----
Sodium	7440-23-5	1	mg/L		**53**	**83**	----	----	----
Potassium	7440-09-7	1	mg/L		**6**	**25**	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**3.92**	**5.68**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**3.85**	**6.58**	----	----	----
ø **Ionic Balance**	----	0.01	%		**0.91**	**7.40**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.05**	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.40**	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.78**	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.02**	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.10**	<0.02	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW036_230610	0967_SW055_230610	----	----	----
				Sampling date / time	10-Jun-2023 10:03	10-Jun-2023 11:04	----	----	----
Compound	CAS Number	LOR	Unit		EP2307676-006	EP2307676-007	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW036_230610	0967_SW055_230610	----	----	----
				Sampling date / time	10-Jun-2023 10:03	10-Jun-2023 11:04	----	----	----
Compound	CAS Number	LOR	Unit		EP2307676-006	EP2307676-007	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.41**	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.18**	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.37**	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.5**	**95.2**	----	----	----
13C8-PFOA	----	0.02	%		**101**	**101**	----	----	----

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **SURFACE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307676**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53427	Issue Date	: 22-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - MB		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5113780)									
EP2307675-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	36	37	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	36	37	0.0	0% - 20%
EP2307676-002	0967_SW066_230610	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	94	94	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	94	94	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5108861)									
EP2307588-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	19	17	8.9	0% - 50%
EP2307592-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2740	2800	2.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5108862)									
EP2307588-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1250	1260	0.4	0% - 20%
EP2307592-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	19200	19400	0.7	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5109034)									
EP2307676-001	0967_SW049_230610	ED093F: Calcium	7440-70-2	1	mg/L	20	20	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	19	19	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	128	129	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP2307678-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	20	20	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5122064)									
EP2307678-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	29.6	24.5	18.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	129	124	3.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	3.07	3.18	3.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.02	3.04	0.5	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	4.19	4.44	5.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	1.40	0.89	44.1	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5122081)									
EP2307678-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	3.92	3.86	1.7	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	7.38	7.18	2.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.45	0.45	0.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.39	0.37	5.5	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.15	0.12	25.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	0.02	0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122064)									
EP2307678-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	2.72	2.81	3.2	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.34	2.28	2.6	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	8.28	7.16	14.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.18	1.18	0.0	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.07	0.07	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.02	0.03	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	0.03	0.06	62.6	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122081)									
EP2307678-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.22	0.24	7.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.29	0.30	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	1.16	1.14	1.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.10	0.10	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.3	0.3	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122064)									
EP2307678-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	1.38	1.59	13.9	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122064) - continued									
EP2307678-002	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122081)									
EP2307678-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122064)									
EP2307678-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.28	0.25	7.8	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.21	0.20	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122081)									
EP2307678-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122081) - continued									
EP2307678-009	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5122064)									
EP2307678-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	189	178	6.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	159	148	6.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	178	167	6.4	0% - 20%
EP231P: PFAS Sums (QC Lot: 5122081)									
EP2307678-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	14.4	14.1	2.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	11.3	11.0	2.3	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	13.8	13.6	1.8	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5113780)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	93.5	87.8	118
				<1	200 mg/L	97.7	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5108861)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	104	89.9	112
				<1	500 mg/L	102	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5108862)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	102	88.6	113
				<1	1000 mg/L	94.7	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5109034)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.0	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.1	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122064)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	84.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	84.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122081)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	108	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	93.3	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	85.1	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122064)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	97.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.4	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122081)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	94.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	94.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122064)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	95.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	107	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	101	61.0	135

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122081)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	100	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	95.1	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	94.4	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	98.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122064)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122081)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	89.4	64.2	133
EP231P: PFAS Sums (QCLot: 5122064)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5122081)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5108861)							
EP2307588-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	98.6	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5108862)							
EP2307588-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	86.6	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307676**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SW - MB	Issue Date	: 22-Jun-2023
Sampler	: [redacted]	No. of samples received	: 11
Order number	: pfas-omp Pearce	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	23	8.70	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	23	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW049_230610, 0967_SW066_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW036_230610, 0967_SW055_230610	**10-Jun-2023**	**----**	----	----	**15-Jun-2023**	24-Jun-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW049_230610, 0967_SW066_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW036_230610, 0967_SW055_230610	**10-Jun-2023**	**----**	----	----	**21-Jun-2023**	08-Jul-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW049_230610, 0967_SW066_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW036_230610, 0967_SW055_230610	**10-Jun-2023**	**----**	----	----	**21-Jun-2023**	08-Jul-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW049_230610, 0967_SW066_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW036_230610, 0967_SW055_230610	**10-Jun-2023**	**----**	----	----	**16-Jun-2023**	17-Jun-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW055_230610, 0967_QC302_230610, 0967_QC402_230610, 0967_SW066_230610, 0967_QC108_230610, 0967_SW036_230610, 0967_QC301_230610, 0967_QC401_230610	**10-Jun-2023**	**20-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	07-Dec-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW055_230610, 0967_QC302_230610, 0967_QC402_230610, 0967_SW066_230610, 0967_QC108_230610, 0967_SW036_230610, 0967_QC301_230610, 0967_QC401_230610,	**10-Jun-2023**	**20-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	07-Dec-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW049_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW055_230610, 0967_QC302_230610, 0967_QC402_230610, 0967_SW066_230610, 0967_QC108_230610, 0967_SW036_230610, 0967_QC301_230610, 0967_QC401_230610,	**10-Jun-2023**	**20-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	07-Dec-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW055_230610, 0967_QC302_230610, 0967_QC402_230610, 0967_SW066_230610, 0967_QC108_230610, 0967_SW036_230610, 0967_QC301_230610, 0967_QC401_230610,	**10-Jun-2023**	**20-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	07-Dec-2023	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW049_230610, 0967_SW048_230610, 0967_SW038_230610, 0967_SW055_230610, 0967_QC302_230610, 0967_QC402_230610, 0967_SW066_230610, 0967_QC108_230610, 0967_SW036_230610, 0967_QC301_230610, 0967_QC401_230610,	**10-Jun-2023**	**20-Jun-2023**	07-Dec-2023	✓	**22-Jun-2023**	07-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	23	**8.70**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	23	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307676**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53427	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - MB		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 13-Jun-2023
Client Requested Due Date	: 22-Jun-2023	Scheduled Reporting Date	: **22-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307676-001	10-Jun-2023 07:50	0967_SW049_230610	✓	✓
EP2307676-002	10-Jun-2023 08:48	0967_SW066_230610	✓	✓
EP2307676-003	10-Jun-2023 09:32	0967_SW048_230610	✓	✓
EP2307676-004	10-Jun-2023 09:33	0967_QC108_230610	✓	
EP2307676-005	10-Jun-2023 10:02	0967_SW038_230610	✓	✓
EP2307676-006	10-Jun-2023 10:03	0967_SW036_230610	✓	✓
EP2307676-007	10-Jun-2023 11:04	0967_SW055_230610	✓	✓
EP2307676-008	10-Jun-2023 11:14	0967_QC301_230610	✓	
EP2307676-009	10-Jun-2023 11:15	0967_QC302_230610	✓	
EP2307676-010	10-Jun-2023 11:16	0967_QC401_230610	✓	
EP2307676-011	10-Jun-2023 11:16	0967_QC402_230610	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307676

Telephone +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOTR_23 **Client:** Stantec **Project Manager:** [redacted]

53424 53428 53427

ALS Compass COC Reference: 53425 **# Samples:** **Phone:**

Sampler:

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
STANTEC			
Date / Time: 12/06/23 7AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 53427 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW049		10/06/2023 07:50 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW066		10/06/2023 08:48 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW048		10/06/2023 09:32 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_QC108		10/06/2023 09:33 AM	WATER	ALS: 2 Non ALS: 0	No	X			
005	0967_SW038		10/06/2023 10:02 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW036		10/06/2023 10:03 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_SW055		10/06/2023 11:04 AM	WATER	ALS: 5 Non ALS: 0	No		X		extra PFAS bottles for lab QC
008	0967_QC301		10/06/2023 11:14 AM	WATER	ALS: 2 Non ALS: 0	No	X			
009	0967_SW302		10/06/2023 11:15 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 53427 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_QC401		10/06/2023 11:16 AM	WATER	ALS: 2 Non ALS: 0	No	X			
011	0967_QC402		10/06/2023 11:16 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 53427 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522067370	Green	No	
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822083399	Grey	No	
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822083349	Grey	No	
002	0967_SW066	HDPE (no PTFE)	20 mL	00350822082716	Grey	No	
002	0967_SW066	HDPE (no PTFE)	20 mL	00350822082860	Grey	No	
002	0967_SW066	Clear Plastic Bottle - Natural	125 mL	00070522054780	Green	No	
003	0967_SW048	HDPE (no PTFE)	20 mL	00350822062502	Grey	No	
003	0967_SW048	Clear Plastic Bottle - Natural	125 mL	00070522068378	Green	No	
003	0967_SW048	HDPE (no PTFE)	20 mL	00350822062426	Grey	No	
004	0967_QC108	HDPE (no PTFE)	20 mL	00350822082417	Grey	No	
004	0967_QC108	HDPE (no PTFE)	20 mL	00350822082465	Grey	No	
005	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522068399	Green	No	
005	0967_SW038	HDPE (no PTFE)	20 mL	00350822062456	Grey	No	
005	0967_SW038	HDPE (no PTFE)	20 mL	00350822062540	Grey	No	
006	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522068180	Green	No	
006	0967_SW036	HDPE (no PTFE)	20 mL	00350822062412	Grey	No	
006	0967_SW036	HDPE (no PTFE)	20 mL	00350822062642	Grey	No	
007	0967_SW055	Clear Plastic Bottle - Natural	125 mL	00070522067268	Green	No	
007	0967_SW055	HDPE (no PTFE)	20 mL	00350822062635	Grey	No	
007	0967_SW055	HDPE (no PTFE)	20 mL	00350822062542	Grey	No	
007	0967_SW055	HDPE (no PTFE)	20 mL	00350822082454	Grey	No	
008	0967_QC301	HDPE (no PTFE)	20 mL	00350822082398	Grey	No	
008	0967_QC301	HDPE (no PTFE)	20 mL	00350822082486	Grey	No	
009	0967_SW302	HDPE (no PTFE)	20 mL	00350822082459	Grey	No	
009	0967_SW302	HDPE (no PTFE)	20 mL	00350822082575	Grey	No	
		HDPE (no PTFE)	20 mL	00350822082466	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 53427 ALS Laboratory: EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

010	0967_QC401	HDPE (no PTFE)	20 mL	00350822082481	Grey	No	
010	0967_QC401	HDPE (no PTFE)	20 mL	00350822082497	Grey	No	
011	0967_QC402	HDPE (no PTFE)	20 mL	00350822082485	Grey	No	
011	0967_QC402	HDPE (no PTFE)	20 mL	00350822082491	Grey	No	

Total Bottle Count: ALS: 30, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307677**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53428	Issue Date	: 21-Jun-2023 16:20
Sampler	: [redacted]		
Site	: Pearce SD - MB		
Quote number	: SY/139/19 B		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230610	0967_SD061_230610	0967_SD062_230610	0967_QC107_230610	0967_SD036_230610
				Sampling date / time	10-Jun-2023 07:52	10-Jun-2023 08:48	10-Jun-2023 09:19	10-Jun-2023 09:19	10-Jun-2023 10:04
Compound	CAS Number	LOR	Unit		EP2307677-001	EP2307677-002	EP2307677-003	EP2307677-004	EP2307677-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**21.9**	**37.5**	**7.2**	**5.4**	**34.9**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0004**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0027**	<0.0002	<0.0002	<0.0002	**0.0060**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230610	0967_SD061_230610	0967_SD062_230610	0967_QC107_230610	0967_SD036_230610
				Sampling date / time	10-Jun-2023 07:52	10-Jun-2023 08:48	10-Jun-2023 09:19	10-Jun-2023 09:19	10-Jun-2023 10:04
Compound	CAS Number	LOR	Unit		EP2307677-001	EP2307677-002	EP2307677-003	EP2307677-004	EP2307677-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0027**	<0.0002	<0.0002	<0.0002	**0.0064**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0027**	<0.0002	<0.0002	<0.0002	**0.0064**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0027**	<0.0002	<0.0002	<0.0002	**0.0064**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**110**	**110**	**120**	**102**	**93.5**
13C8-PFOA	----	0.0002	%		**97.5**	**99.0**	**98.0**	**100**	**98.0**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD055_230610	----	----	----	----
				Sampling date / time	10-Jun-2023 11:05	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307677-006	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**14.9**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD055_230610	----	----	----	----
				Sampling date / time	10-Jun-2023 11:05	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307677-006	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		<0.0002	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		<0.0002	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**107**	----	----	----	----
13C8-PFOA	----	0.0002	%		**99.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307677**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53428	Issue Date	: 21-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - MB		
Quote number	: SY/139/19 B		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5119525)									
EP2307672-033	Anonymous	EA055: Moisture Content	----	0.1	%	4.7	4.2	11.3	0% - 20%
EP2307677-004	0967_QC107_230610	EA055: Moisture Content	----	0.1	%	5.4	5.5	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115438)									
EP2307668-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307668-012	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115438)									
EP2307668-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115438) - continued									
EP2307668-001	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307668-012	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115438)									
EP2307668-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307668-012	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115438)									
EP2307668-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307668-012	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115438)									
EP2307668-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307668-012	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115438)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	120	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	97.0	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	96.6	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	104	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	101	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115438)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	108	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	102	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115438)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	97.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	111	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	108	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115438)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115438) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	114	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	118	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	122	54.8	124
EP231P: PFAS Sums (QCLot: 5115438)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115438)							
EP2307668-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	113	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	119	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	91.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	98.7	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	102	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	93.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115438)							
EP2307668-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	114	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	110	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	94.7	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	103	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	107	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	114	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	114	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	103	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	104	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	108	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115438)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115438) - continued							
EP2307668-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	89.1	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	111	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	106	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	109	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	108	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	109	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115438)							
EP2307668-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	124	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	122	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	101	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	124	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307677**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SD - MB	Issue Date	: 21-Jun-2023
Sampler	: [redacted]	No. of samples received	: 6
Order number	: pfas-omp Pearce	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**----**	----	----	**19-Jun-2023**	24-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**16-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**16-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**16-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**16-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD049_230610, 0967_SD061_230610, 0967_SD062_230610, 0967_QC107_230610, 0967_SD036_230610, 0967_SD055_230610	**10-Jun-2023**	**16-Jun-2023**	07-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307677**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53428	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - MB		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 13-Jun-2023
Client Requested Due Date	: 22-Jun-2023	Scheduled Reporting Date	: **22-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.11 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307677-001	10-Jun-2023 07:52	0967_SD049_230610	✓	✓
EP2307677-002	10-Jun-2023 08:48	0967_SD061_230610	✓	✓
EP2307677-003	10-Jun-2023 09:19	0967_SD062_230610	✓	✓
EP2307677-004	10-Jun-2023 09:19	0967_QC107_230610	✓	✓
EP2307677-005	10-Jun-2023 10:04	0967_SD036_230610	✓	✓
EP2307677-006	10-Jun-2023 11:05	0967_SD055_230610	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307677

Telephone – 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOTR 23 **Client:** Stantec **Project Manager:** [redacted]

Phone: ( )

53424 53428 53427

ALS Compass COC Reference: 53425 **# Samples:** **Sampler:**

Phone: ( )

Turnaround Requirements: (Standard)

Special Instructions:

Custody:

Relinquished by: STANTEC	Received by:	Relinquished by:	Received by:
Date / Time: 12/06/23 7AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 53428 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD049		10/06/2023 07:52 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD061		10/06/2023 08:48 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD062		10/06/2023 09:19 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_QC107		10/06/2023 09:19 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD036		10/06/2023 10:04 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD055		10/06/2023 11:05 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53428 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - MB

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD049	HDPE Soil Jar	200 mL	00621122079211	Grey	No	
002	0967_SD061	HDPE Soil Jar	200 mL	00621122035130	Grey	No	
003	0967_SD062	HDPE Soil Jar	200 mL	00621122079823	Grey	No	
004	0967_QC107	HDPE Soil Jar	200 mL	00621122079239	Grey	No	
005	0967_SD036	HDPE Soil Jar	200 mL	00621122035126	Grey	No	
006	0967_SD055	HDPE Soil Jar	200 mL	00621122079163	Grey	No	

Total Bottle Count: ALS: 6, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307678**	Page	: 1 of 17
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53445	Issue Date	: 22-Jun-2023 18:15
Sampler	: [redacted]		
Site	: Pearce SW		
Quote number	: SY/139/19 B		
No. of samples received	: 22		
No. of samples analysed	: 22		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC300_230611	0967_QC400_230611	----	----	----
				Sampling date / time	11-Jun-2023 10:29	11-Jun-2023 10:29	----	----	----
Compound	CAS Number	LOR	Unit		EP2307678-021	EP2307678-022	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC300_230611	0967_QC400_230611	----	----	----
				Sampling date / time	11-Jun-2023 10:29	11-Jun-2023 10:29	----	----	----
Compound	CAS Number	LOR	Unit		EP2307678-021	EP2307678-022	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.4**	**91.9**	----	----	----
13C8-PFOA	----	0.02	%		**101**	**101**	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW007_230611	0967_QC110_230611	0967_SW018_230611	0967_SW010_230611	0967_QC113_230611
				Sampling date / time	11-Jun-2023 07:32	11-Jun-2023 07:32	11-Jun-2023 07:42	11-Jun-2023 07:52	11-Jun-2023 07:52
Compound	CAS Number	LOR	Unit		EP2307678-001	EP2307678-002	EP2307678-003	EP2307678-004	EP2307678-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		73	----	79	42	42
Total Alkalinity as CaCO3	----	1	mg/L		73	----	79	42	42
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		17	----	13	5	5
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		27	----	21	26	26
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		23	----	13	5	4
Magnesium	7439-95-4	1	mg/L		3	----	1	1	1
Sodium	7440-23-5	1	mg/L		29	----	29	27	27
Potassium	7440-09-7	1	mg/L		7	----	5	5	5
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		2.57	----	2.44	1.68	1.68
ø Total Cations	----	0.01	meq/L		2.84	----	2.12	1.63	1.58
ø Ionic Balance	----	0.01	%		4.82	----	7.04	1.29	2.84
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		3.17	3.07	0.04	2.62	2.44
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		3.12	3.02	0.03	2.36	2.26
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		25.4	29.6	0.31	20.5	21.5
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		4.03	4.19	<0.02	1.66	1.42
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		126	129	0.70	44.2	50.2
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		0.85	1.40	<0.02	0.12	0.21
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		1.8	1.8	<0.1	1.8	1.8
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		2.35	2.34	<0.02	1.73	1.66
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		7.27	8.28	0.07	6.31	7.51

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW007_230611	0967_QC110_230611	0967_SW018_230611	0967_SW010_230611	0967_QC113_230611
				Sampling date / time	11-Jun-2023 07:32	11-Jun-2023 07:32	11-Jun-2023 07:42	11-Jun-2023 07:52	11-Jun-2023 07:52
Compound	CAS Number	LOR	Unit		EP2307678-001	EP2307678-002	EP2307678-003	EP2307678-004	EP2307678-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**1.14**	**1.18**	<0.02	**0.67**	**0.69**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**2.80**	**2.72**	**0.02**	**1.55**	**1.59**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.07**	**0.07**	<0.02	**0.05**	**0.05**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.03**	**0.03**	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		**0.02**	**0.02**	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		**0.02**	**0.03**	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**1.32**	**1.38**	<0.02	**0.07**	**0.07**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		**0.25**	**0.28**	<0.05	**0.10**	**0.10**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		**0.19**	**0.21**	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW007_230611	0967_QC110_230611	0967_SW018_230611	0967_SW010_230611	0967_QC113_230611
				Sampling date / time	11-Jun-2023 07:32	11-Jun-2023 07:32	11-Jun-2023 07:42	11-Jun-2023 07:52	11-Jun-2023 07:52
Compound	CAS Number	LOR	Unit		EP2307678-001	EP2307678-002	EP2307678-003	EP2307678-004	EP2307678-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**180**	**189**	**1.17**	**83.7**	**91.5**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**151**	**159**	**1.01**	**64.7**	**71.7**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**170**	**178**	**1.14**	**79.5**	**87.5**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**80.8**	**91.5**	**94.5**	**85.8**	**95.7**
13C8-PFOA	----	0.02	%		**105**	**99.9**	**103**	**99.7**	**106**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230611	0967_SW020_230611	0967_SW032_230611	0967_SW034_230611	0967_SW028_230611
				Sampling date / time	11-Jun-2023 08:02	11-Jun-2023 08:16	11-Jun-2023 08:28	11-Jun-2023 08:41	11-Jun-2023 09:08
Compound	CAS Number	LOR	Unit		EP2307678-006	EP2307678-007	EP2307678-008	EP2307678-009	EP2307678-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**35**	**69**	**60**	**53**	**42**
Total Alkalinity as CaCO3	----	1	mg/L		**35**	**69**	**60**	**53**	**42**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	**13**	**26**	**3**	**1**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**22**	**16**	**62**	**14**	**14**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**4**	**11**	**14**	**9**	**6**
Magnesium	7439-95-4	1	mg/L		<1	**1**	**5**	**1**	**1**
Sodium	7440-23-5	1	mg/L		**20**	**23**	**47**	**15**	**15**
Potassium	7440-09-7	1	mg/L		**5**	**5**	**4**	**3**	**2**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**1.32**	**2.10**	**3.49**	**1.52**	**1.25**
ø **Total Cations**	----	0.01	meq/L		**1.20**	**1.76**	**3.26**	**1.26**	**1.08**
ø **Ionic Balance**	----	0.01	%		**4.86**	**8.84**	**3.44**	**9.21**	**7.25**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**1.13**	**0.03**	<0.02	**0.45**	**0.02**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**1.01**	**0.03**	<0.02	**0.39**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**10.2**	**0.25**	**0.12**	**3.92**	**0.21**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.44**	<0.02	<0.02	**0.15**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**17.4**	**0.60**	**0.40**	**7.38**	**0.48**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		**0.07**	<0.02	<0.02	**0.02**	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.8**	<0.1	<0.1	**0.3**	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.80**	<0.02	<0.02	**0.29**	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**3.21**	**0.07**	**0.04**	**1.16**	**0.04**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230611	0967_SW020_230611	0967_SW032_230611	0967_SW034_230611	0967_SW028_230611
				Sampling date / time	11-Jun-2023 08:02	11-Jun-2023 08:16	11-Jun-2023 08:28	11-Jun-2023 08:41	11-Jun-2023 09:08
Compound	CAS Number	LOR	Unit		EP2307678-006	EP2307678-007	EP2307678-008	EP2307678-009	EP2307678-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.28**	<0.02	<0.02	**0.10**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.64**	**0.02**	**0.01**	**0.22**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW015_230611	0967_SW020_230611	0967_SW032_230611	0967_SW034_230611	0967_SW028_230611
				Sampling date / time	11-Jun-2023 08:02	11-Jun-2023 08:16	11-Jun-2023 08:28	11-Jun-2023 08:41	11-Jun-2023 09:08
Compound	CAS Number	LOR	Unit		EP2307678-006	EP2307678-007	EP2307678-008	EP2307678-009	EP2307678-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**36.0**	**1.00**	**0.57**	**14.4**	**0.75**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**27.6**	**0.85**	**0.52**	**11.3**	**0.69**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**34.5**	**0.97**	**0.57**	**13.8**	**0.75**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**101**	**89.1**	**90.4**	**105**	**89.7**
13C8-PFOA	----	0.02	%		**103**	**101**	**99.3**	**100**	**104**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230611	0967_SW022_230611	0967_SW060_230611	0967_SW058_230611	0967_SW055_230611
				Sampling date / time	11-Jun-2023 09:21	11-Jun-2023 09:39	11-Jun-2023 10:06	11-Jun-2023 10:07	11-Jun-2023 10:18
Compound	CAS Number	LOR	Unit		EP2307678-011	EP2307678-012	EP2307678-013	EP2307678-014	EP2307678-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**29**	**82**	**94**	**97**	**37**
Total Alkalinity as CaCO3	----	1	mg/L		**29**	**82**	**94**	**97**	**37**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**6**	**30**	**40**	**42**	**68**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**22**	**118**	**95**	**96**	**137**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**5**	**20**	**40**	**40**	**28**
Magnesium	7439-95-4	1	mg/L		**1**	**8**	**8**	**8**	**12**
Sodium	7440-23-5	1	mg/L		**18**	**88**	**58**	**59**	**83**
Potassium	7440-09-7	1	mg/L		**2**	**5**	**14**	**14**	**26**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**1.32**	**5.59**	**5.39**	**5.52**	**6.02**
ø **Total Cations**	----	0.01	meq/L		**1.16**	**5.61**	**5.54**	**5.58**	**6.66**
ø **Ionic Balance**	----	0.01	%		**6.38**	**0.18**	**1.32**	**0.52**	**5.05**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.04**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.03**	**0.04**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.50**	**0.34**	**0.02**	**0.02**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**1.40**	**0.62**	**0.02**	**0.02**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.23**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.04**	**0.23**	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230611	0967_SW022_230611	0967_SW060_230611	0967_SW058_230611	0967_SW055_230611
				Sampling date / time	11-Jun-2023 09:21	11-Jun-2023 09:39	11-Jun-2023 10:06	11-Jun-2023 10:07	11-Jun-2023 10:18
Compound	CAS Number	LOR	Unit		EP2307678-011	EP2307678-012	EP2307678-013	EP2307678-014	EP2307678-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.06**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.60**	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230611	0967_SW022_230611	0967_SW060_230611	0967_SW058_230611	0967_SW055_230611
				Sampling date / time	11-Jun-2023 09:21	11-Jun-2023 09:39	11-Jun-2023 10:06	11-Jun-2023 10:07	11-Jun-2023 10:18
Compound	CAS Number	LOR	Unit		EP2307678-011	EP2307678-012	EP2307678-013	EP2307678-014	EP2307678-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**2.06**	**2.18**	**0.04**	**0.04**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.90**	**0.96**	**0.04**	**0.04**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**2.00**	**2.14**	**0.04**	**0.04**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.8**	**101**	**98.4**	**98.1**	**102**
13C8-PFOA	----	0.02	%		**100**	**104**	**98.4**	**101**	**103**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230611	0967_SW049_230611	0967_SW036_230611	0967_SW038_230611	0967_SW066_230611
				Sampling date / time	11-Jun-2023 10:19	11-Jun-2023 10:20	11-Jun-2023 10:21	11-Jun-2023 10:21	11-Jun-2023 10:22
Compound	CAS Number	LOR	Unit		EP2307678-016	EP2307678-017	EP2307678-018	EP2307678-019	EP2307678-020
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		43	47	74	73	101
Total Alkalinity as CaCO3	----	1	mg/L		43	47	74	73	101
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		70	107	30	29	33
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		188	501	69	68	163
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		20	33	18	18	29
Magnesium	7439-95-4	1	mg/L		18	38	6	6	15
Sodium	7440-23-5	1	mg/L		126	337	53	53	116
Potassium	7440-09-7	1	mg/L		8	14	6	6	6
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		7.62	17.3	4.05	3.98	7.30
ø Total Cations	----	0.01	meq/L		8.16	19.8	3.85	3.85	7.88
ø Ionic Balance	----	0.01	%		3.45	6.72	2.52	1.66	3.80
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.03	0.02	0.05	0.05	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.02	<0.02	0.04	0.04	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.22	0.13	0.40	0.42	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.42	0.28	0.82	0.87	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.03	0.03	0.02	0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.07	0.04	0.10	0.10	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230611	0967_SW049_230611	0967_SW036_230611	0967_SW038_230611	0967_SW066_230611
				Sampling date / time	11-Jun-2023 10:19	11-Jun-2023 10:20	11-Jun-2023 10:21	11-Jun-2023 10:21	11-Jun-2023 10:22
Compound	CAS Number	LOR	Unit		EP2307678-016	EP2307678-017	EP2307678-018	EP2307678-019	EP2307678-020
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	**0.02**	**0.02**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230611	0967_SW049_230611	0967_SW036_230611	0967_SW038_230611	0967_SW066_230611
				Sampling date / time	11-Jun-2023 10:19	11-Jun-2023 10:20	11-Jun-2023 10:21	11-Jun-2023 10:21	11-Jun-2023 10:22
Compound	CAS Number	LOR	Unit		EP2307678-016	EP2307678-017	EP2307678-018	EP2307678-019	EP2307678-020
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.80**	**0.50**	**1.45**	**1.52**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.64**	**0.41**	**1.22**	**1.29**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.78**	**0.50**	**1.41**	**1.48**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.9**	**104**	**92.5**	**100**	**99.6**
13C8-PFOA	----	0.02	%		**102**	**105**	**102**	**103**	**105**

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **SURFACE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307678**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Jun-2023
C-O-C number	: 53445	Issue Date	: 22-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW		
Quote number	: SY/139/19 B		
No. of samples received	: 22		
No. of samples analysed	: 22		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5113780)									
EP2307675-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	36	37	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	36	37	0.0	0% - 20%
EP2307676-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	94	94	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	94	94	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5120065)									
EP2307678-006	0967_SW015_230611	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	35	35	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	35	35	0.0	0% - 20%
EP2307678-016	0967_SW049_230611	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	43	41	3.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	43	41	3.3	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5108864)									
EP2307678-001	0967_SW007_230611	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	17	17	0.0	0% - 50%
EP2307678-012	0967_SW022_230611	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	30	31	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5108865)									
EP2307678-001	0967_SW007_230611	ED045G: Chloride	16887-00-6	1	mg/L	27	27	0.0	0% - 20%
EP2307678-012	0967_SW022_230611	ED045G: Chloride	16887-00-6	1	mg/L	118	119	0.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5109034)									
EP2307676-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	20	20	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	19	19	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	128	129	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP2307678-006	0967_SW015_230611	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	20	20	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5109035)									
EP2307678-016	0967_SW049_230611	ED093F: Calcium	7440-70-2	1	mg/L	20	20	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	18	18	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	126	127	0.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EP2307853-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	111	112	1.4	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	16	16	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	110	112	1.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5122064)									
EP2307678-002	0967_QC110_230611	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	29.6	24.5	18.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	129	124	3.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	3.07	3.18	3.8	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	3.02	3.04	0.5	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	4.19	4.44	5.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	1.40	0.89	44.1	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5122068)									
EP2307678-015	0967_SW055_230611	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5122081)									
EP2307678-009	0967_SW034_230611	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	3.92	3.86	1.7	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	7.38	7.18	2.9	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.45	0.45	0.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.39	0.37	5.5	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.15	0.12	25.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	0.02	0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122064)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122064) - continued									
EP2307678-002	0967_QC110_230611	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	2.72	2.81	3.2	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.34	2.28	2.6	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	8.28	7.16	14.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	1.18	1.18	0.0	0% - 20%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.07	0.07	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.02	0.03	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	0.03	0.06	62.6	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	1.8	1.8	0.0	0% - 50%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122068)									
EP2307678-015	0967_SW055_230611	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5122081)									
EP2307678-009	0967_SW034_230611	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.22	0.24	7.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.29	0.30	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	1.16	1.14	1.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.10	0.10	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.3	0.3	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122064)									
EP2307678-002	0967_QC110_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	1.38	1.59	13.9	0% - 20%
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122064) - continued									
EP2307678-002	0967_QC110_230611	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122068)									
EP2307678-015	0967_SW055_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5122081)									
EP2307678-009	0967_SW034_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122064)									
EP2307678-002	0967_QC110_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122064) - continued									
EP2307678-002	0967_QC110_230611	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.28	0.25	7.8	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.21	0.20	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122068)									
EP2307678-015	0967_SW055_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5122081)									
EP2307678-009	0967_SW034_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5122064)									
EP2307678-002	0967_QC110_230611	EP231X: Sum of PFAS	----	0.01	µg/L	189	178	6.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	159	148	6.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	178	167	6.4	0% - 20%
EP231P: PFAS Sums (QC Lot: 5122068)									
EP2307678-015	0967_SW055_230611	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5122081)									
EP2307678-009	0967_SW034_230611	EP231X: Sum of PFAS	----	0.01	µg/L	14.4	14.1	2.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	11.3	11.0	2.3	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	13.8	13.6	1.8	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5113780)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	93.5	87.8	118
				<1	200 mg/L	97.7	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5120065)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	113	87.8	118
				<1	200 mg/L	91.7	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5108864)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	89.9	112
				<1	500 mg/L	103	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5108865)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	107	88.6	113
				<1	1000 mg/L	95.0	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5109034)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.0	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	95.1	84.6	108
ED093F: Dissolved Major Cations (QCLot: 5109035)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.0	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.0	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122064)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122064) - continued								
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	99.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	84.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	84.2	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122068)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.1	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	96.7	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.8	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	99.6	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	102	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	96.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5122081)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	108	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	93.3	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	85.1	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122064)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	97.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.4	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122068)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	94.2	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122068) - continued								
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	98.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	95.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	107	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	101	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5122081)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	100	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	94.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	94.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122064)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	95.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	89.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	107	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	112	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	101	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122068)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122068) - continued								
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.4	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	100	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	117	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5122081)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	100	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	95.1	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	94.4	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	98.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122064)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	98.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122068)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	107	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	119	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	108	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122081)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	103	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5122081) - continued								
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	89.4	64.2	133
EP231P: PFAS Sums (QCLot: 5122064)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5122068)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5122081)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5108864)							
EP2307678-001	0967_SW007_230611	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	111	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5108865)							
EP2307678-001	0967_SW007_230611	ED045G: Chloride	16887-00-6	1000 mg/L	92.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307678**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SW	Issue Date	: 22-Jun-2023
Sampler	: [redacted]	No. of samples received	: 22
Order number	: pfas-omp Pearce	No. of samples analysed	: 22

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	3				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	3	34	8.82	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	34	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW007_230611, 0967_SW018_230611, 0967_SW010_230611, 0967_QC113_230611	**11-Jun-2023**	**----**	----	----	**15-Jun-2023**	25-Jun-2023	✓
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW015_230611, 0967_SW020_230611, 0967_SW032_230611, 0967_SW034_230611, 0967_SW028_230611, 0967_SW025_230611, 0967_SW022_230611, 0967_SW060_230611, 0967_SW058_230611, 0967_SW055_230611, 0967_SW049_230611, 0967_SW049_230611, 0967_SW036_230611, 0967_SW038_230611, 0967_SW066_230611	**11-Jun-2023**	**----**	----	----	**20-Jun-2023**	25-Jun-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW007_230611, 0967_SW010_230611, 0967_SW015_230611, 0967_SW032_230611, 0967_SW028_230611, 0967_SW022_230611, 0967_SW058_230611, 0967_SW049_230611, 0967_SW036_230611, 0967_SW066_230611, 0967_SW018_230611, 0967_QC113_230611, 0967_SW020_230611, 0967_SW034_230611, 0967_SW025_230611, 0967_SW060_230611, 0967_SW055_230611, 0967_SW049_230611, 0967_SW038_230611,	**11-Jun-2023**	**----**	----	----	**22-Jun-2023**	09-Jul-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW007_230611, 0967_SW010_230611, 0967_SW015_230611, 0967_SW032_230611, 0967_SW028_230611, 0967_SW022_230611, 0967_SW058_230611, 0967_SW049_230611, 0967_SW036_230611, 0967_SW066_230611, 0967_SW018_230611, 0967_QC113_230611, 0967_SW020_230611, 0967_SW034_230611, 0967_SW025_230611, 0967_SW060_230611, 0967_SW055_230611, 0967_SW049_230611, 0967_SW038_230611,	**11-Jun-2023**	**----**	----	----	**22-Jun-2023**	09-Jul-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW007_230611, 0967_SW010_230611, 0967_SW015_230611, 0967_SW032_230611, 0967_SW028_230611, 0967_SW022_230611, 0967_SW058_230611, 0967_SW049_230611, 0967_SW036_230611, 0967_SW066_230611, 0967_SW018_230611, 0967_QC113_230611, 0967_SW020_230611, 0967_SW034_230611, 0967_SW025_230611, 0967_SW060_230611, 0967_SW055_230611, 0967_SW049_230611, 0967_SW038_230611,	**11-Jun-2023**	**----**	----	----	**16-Jun-2023**	18-Jun-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW007_230611,	0967_QC110_230611,	**11-Jun-2023**	**20-Jun-2023**	08-Dec-2023	✓	**22-Jun-2023**	08-Dec-2023	✓
0967_SW018_230611,	0967_SW010_230611,							
0967_QC113_230611,	0967_SW015_230611,							
0967_SW020_230611,	0967_SW032_230611,							
0967_SW034_230611,	0967_SW028_230611,							
0967_SW025_230611,	0967_SW022_230611,							
0967_SW060_230611,	0967_SW058_230611,							
0967_SW055_230611,	0967_SW049_230611,							
0967_SW049_230611,	0967_SW036_230611,							
0967_SW038_230611,	0967_SW066_230611,							
0967_QC300_230611,	0967_QC400_230611							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW007_230611,	0967_QC110_230611,	**11-Jun-2023**	**20-Jun-2023**	08-Dec-2023	✓	**22-Jun-2023**	08-Dec-2023	✓
0967_SW018_230611,	0967_SW010_230611,							
0967_QC113_230611,	0967_SW015_230611,							
0967_SW020_230611,	0967_SW032_230611,							
0967_SW034_230611,	0967_SW028_230611,							
0967_SW025_230611,	0967_SW022_230611,							
0967_SW060_230611,	0967_SW058_230611,							
0967_SW055_230611,	0967_SW049_230611,							
0967_SW049_230611,	0967_SW036_230611,							
0967_SW038_230611,	0967_SW066_230611,							
0967_QC300_230611,	0967_QC400_230611							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW007_230611,	0967_QC110_230611,	**11-Jun-2023**	**20-Jun-2023**	08-Dec-2023	✓	**22-Jun-2023**	08-Dec-2023	✓
0967_SW018_230611,	0967_SW010_230611,							
0967_QC113_230611,	0967_SW015_230611,							
0967_SW020_230611,	0967_SW032_230611,							
0967_SW034_230611,	0967_SW028_230611,							
0967_SW025_230611,	0967_SW022_230611,							
0967_SW060_230611,	0967_SW058_230611,							
0967_SW055_230611,	0967_SW049_230611,							
0967_SW049_230611,	0967_SW036_230611,							
0967_SW038_230611,	0967_SW066_230611,							
0967_QC300_230611,	0967_QC400_230611							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW007_230611,	0967_QC110_230611,	**11-Jun-2023**	**20-Jun-2023**	08-Dec-2023	✓	**22-Jun-2023**	08-Dec-2023	✓
0967_SW018_230611,	0967_SW010_230611,							
0967_QC113_230611,	0967_SW015_230611,							
0967_SW020_230611,	0967_SW032_230611,							
0967_SW034_230611,	0967_SW028_230611,							
0967_SW025_230611,	0967_SW022_230611,							
0967_SW060_230611,	0967_SW058_230611,							
0967_SW055_230611,	0967_SW049_230611,							
0967_SW049_230611,	0967_SW036_230611,							
0967_SW038_230611,	0967_SW066_230611,							
0967_QC300_230611,	0967_QC400_230611							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW007_230611,	0967_QC110_230611,	**11-Jun-2023**	**20-Jun-2023**	08-Dec-2023	✓	**22-Jun-2023**	08-Dec-2023	✓
0967_SW018_230611,	0967_SW010_230611,							
0967_QC113_230611,	0967_SW015_230611,							
0967_SW020_230611,	0967_SW032_230611,							
0967_SW034_230611,	0967_SW028_230611,							
0967_SW025_230611,	0967_SW022_230611,							
0967_SW060_230611,	0967_SW058_230611,							
0967_SW055_230611,	0967_SW049_230611,							
0967_SW049_230611,	0967_SW036_230611,							
0967_SW038_230611,	0967_SW066_230611,							
0967_QC300_230611,	0967_QC400_230611							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	34	**8.82**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	34	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307678**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 3
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53445	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 13-Jun-2023
Client Requested Due Date	: 22-Jun-2023	Scheduled Reporting Date	: **22-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 22 / 22

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307678-001	11-Jun-2023 07:32	0967_SW007_230611	✓	✓
EP2307678-002	11-Jun-2023 07:32	0967_QC110_230611	✓	
EP2307678-003	11-Jun-2023 07:42	0967_SW018_230611	✓	✓
EP2307678-004	11-Jun-2023 07:52	0967_SW010_230611	✓	✓
EP2307678-005	11-Jun-2023 07:52	0967_QC113_230611	✓	✓
EP2307678-006	11-Jun-2023 08:02	0967_SW015_230611	✓	✓
EP2307678-007	11-Jun-2023 08:16	0967_SW020_230611	✓	✓
EP2307678-008	11-Jun-2023 08:28	0967_SW032_230611	✓	✓
EP2307678-009	11-Jun-2023 08:41	0967_SW034_230611	✓	✓
EP2307678-010	11-Jun-2023 09:08	0967_SW028_230611	✓	✓
EP2307678-011	11-Jun-2023 09:21	0967_SW025_230611	✓	✓
EP2307678-012	11-Jun-2023 09:39	0967_SW022_230611	✓	✓
EP2307678-013	11-Jun-2023 10:06	0967_SW060_230611	✓	✓
EP2307678-014	11-Jun-2023 10:07	0967_SW058_230611	✓	✓
EP2307678-015	11-Jun-2023 10:18	0967_SW055_230611	✓	✓
EP2307678-016	11-Jun-2023 10:19	0967_SW049_230611	✓	✓
EP2307678-017	11-Jun-2023 10:20	0967_SW049_230611	✓	✓
EP2307678-018	11-Jun-2023 10:21	0967_SW036_230611	✓	✓
EP2307678-019	11-Jun-2023 10:21	0967_SW038_230611	✓	✓
EP2307678-020	11-Jun-2023 10:22	0967_SW066_230611	✓	✓
EP2307678-021	11-Jun-2023 10:29	0967_QC300_230611	✓	
EP2307678-022	11-Jun-2023 10:29	0967_QC400_230611	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]

- A4 - AU Tax Invoice (INV)	Email	[redacted]cardno.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	[redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	[redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	[redacted]esdat.com.au
- Chain of Custody (CoC) (COC)	Email	[redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT)	Email	[redacted]esdat.com.au
- EDI Format - XTab (XTAB)	Email	[redacted]esdat.com.au

[redacted]

- *AU Certificate of Analysis - NATA (COA)	Email	[redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	[redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	[redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	[redacted]stantec.com
- Chain of Custody (CoC) (COC)	Email	[redacted]stantec.com
- EDI Format - ESDAT (ESDAT)	Email	[redacted]stantec.com
- EDI Format - XTab (XTAB)	Email	[redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307678

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967_PFAS0112-23 **Client:** Stantec **Project Manager:** [redacted]

Phone: [redacted]

ALS Compass COC Reference: 53445 53446 **# Samples:** **Sampler:** [redacted]

Phone: [redacted]

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 12/06/23 8AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: **53445** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW007		11/06/2023 07:32 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_QC110		11/06/2023 07:32 AM	WATER	ALS: 4 Non ALS: 0	No	X			extra PFAS bottles for lab QC
003	0967_SW018		11/06/2023 07:42 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_SW010		11/06/2023 07:52 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_QC113		11/06/2023 07:52 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW015		11/06/2023 08:02 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_SW020		11/06/2023 08:16 AM	WATER	ALS: 3 Non ALS: 0	No		X		
008	0967_SW032		11/06/2023 08:28 AM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_SW034		11/06/2023 08:41 AM	WATER	ALS: 5 Non ALS: 0	No		X		extra PFAS bottles for lab QC

CHAIN OF CUSTODY

COC#: 53445 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW028		11/06/2023 09:08 AM	WATER	ALS: 3 Non ALS: 0	No		X		
011	0967_SW025		11/06/2023 09:21 AM	WATER	ALS: 3 Non ALS: 0	No		X		
012	0967_SW022		11/06/2023 09:39 AM	WATER	ALS: 3 Non ALS: 0	No		X		
013	0967_SW060		11/06/2023 10:06 AM	WATER	ALS: 3 Non ALS: 0	No		X		
014	0967_SW058		11/06/2023 10:07 AM	WATER	ALS: 3 Non ALS: 0	No		X		
015	0967_SW055		11/06/2023 10:18 AM	WATER	ALS: 5 Non ALS: 0	No		X		
016	0967_SW049		11/06/2023 10:19 AM	WATER	ALS: 3 Non ALS: 0	No		X		
017	0967_SW049		11/06/2023 10:20 AM	WATER	ALS: 3 Non ALS: 0	No		X		
018	0967_SW036		11/06/2023 10:21 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

(ALS) COC#: 53445 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
019	0967_SW038		11/06/2023 10:21 AM	WATER	ALS: 3 Non ALS: 0	No		X		
020	0967_SW066		11/06/2023 10:22 AM	WATER	ALS: 3 Non ALS: 0	No		X		
021	0967_QC300		11/06/2023 10:29 AM	WATER	ALS: 2 Non ALS: 0	No	X			
022	0967_QC400		11/06/2023 10:29 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

(ALS) *COC#:* **53445** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW007	HDPE (no PTFE)	20 mL	00350822062425	Grey	No	
001	0967_SW007	HDPE (no PTFE)	20 mL	00350822062601	Grey	No	
001	0967_SW007	Clear Plastic Bottle - Natural	125 mL	00070522068352	Green	No	
002	0967_QC110	HDPE (no PTFE)	20 mL	00350822062455	Grey	No	
002	0967_QC110	HDPE (no PTFE)	20 mL	00350822062513	Grey	No	
002	0967_QC110	HDPE (no PTFE)	20 mL	00350822062675	Grey	No	
002	0967_QC110	HDPE (no PTFE)	20 mL	00350822062522	Grey	No	
003	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522054843	Green	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822082511	Grey	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822082577	Grey	No	
004	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522068416	Green	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062446	Grey	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062527	Grey	No	
005	0967_QC113	Clear Plastic Bottle - Natural	125 mL	00070522068327	Green	No	
005	0967_QC113	HDPE (no PTFE)	20 mL	00350822062638	Grey	No	
005	0967_QC113	HDPE (no PTFE)	20 mL	00350822062511	Grey	No	
006	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522067072	Green	No	
006	0967_SW015	HDPE (no PTFE)	20 mL	00350822086400	Grey	No	
006	0967_SW015	HDPE (no PTFE)	20 mL	00350822062402	Grey	No	
007	0967_SW020	HDPE (no PTFE)	20 mL	00350822062579	Grey	No	
007	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070522067465	Green	No	
007	0967_SW020	HDPE (no PTFE)	20 mL	00350822062420	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062490	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062474	Grey	No	
008	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522067114	Green	No	
009	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522067343	Green	No	

CHAIN OF CUSTODY

(ALS) COC#: 53445 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062405	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062477	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062422	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062591	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062465	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062445	Grey	No	
010	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522067186	Green	No	
011	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522067129	Green	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062624	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062505	Grey	No	
012	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522067131	Green	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062415	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062587	Grey	No	
013	0967_SW060	HDPE (no PTFE)	20 mL	00350822062493	Grey	No	
013	0967_SW060	HDPE (no PTFE)	20 mL	00350822062494	Grey	No	
013	0967_SW060	Clear Plastic Bottle - Natural	125 mL	00070522067333	Green	No	
014	0967_SW058	HDPE (no PTFE)	20 mL	00350822086391	Grey	No	
014	0967_SW058	HDPE (no PTFE)	20 mL	00350822062589	Grey	No	
014	0967_SW058	Clear Plastic Bottle - Natural	125 mL	00070522067290	Green	No	
015	0967_SW055	Clear Plastic Bottle - Natural	125 mL	00070522068382	Green	No	
015	0967_SW055	HDPE (no PTFE)	20 mL	00350822082509	Grey	No	
015	0967_SW055	HDPE (no PTFE)	20 mL	00350822062637	Grey	No	
015	0967_SW055	HDPE (no PTFE)	20 mL	00350822062614	Grey	No	
015	0967_SW055	HDPE (no PTFE)	20 mL	00350822082588	Grey	No	
016	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522054703	Green	No	
016	0967_SW049	HDPE (no PTFE)	20 mL	00350822083491	Grey	No	
016	0967_SW049	HDPE (no PTFE)	20 mL	00350822083221	Grey	No	

CHAIN OF CUSTODY

COC#: 53445 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

017	0967_SW049	HDPE (no PTFE)	20 mL	00350822062487	Grey	No	
017	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522067264	Green	No	
017	0967_SW049	HDPE (no PTFE)	20 mL	00350822086389	Grey	No	
018	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522067088	Green	No	
018	0967_SW036	HDPE (no PTFE)	20 mL	00350822062609	Grey	No	
018	0967_SW036	HDPE (no PTFE)	20 mL	00350822062523	Grey	No	
019	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522068361	Green	No	
019	0967_SW038	HDPE (no PTFE)	20 mL	00350822062534	Grey	No	
019	0967_SW038	HDPE (no PTFE)	20 mL	00350822062548	Grey	No	
020	0967_SW066	HDPE (no PTFE)	20 mL	00350822082864	Grey	No	
020	0967_SW066	HDPE (no PTFE)	20 mL	00350822082612	Grey	No	
020	0967_SW066	Clear Plastic Bottle - Natural	125 mL	00070522067297	Green	No	
021	0967_QC300	HDPE (no PTFE)	20 mL	00350822082538	Grey	No	
021	0967_QC300	HDPE (no PTFE)	20 mL	00350822082516	Grey	No	
022	0967_QC400	HDPE (no PTFE)	20 mL	00350822082332	Grey	No	
022	0967_QC400	HDPE (no PTFE)	20 mL	00350822082453	Grey	No	

Total Bottle Count: ALS: 69, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307679**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:30
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53446	Issue Date	: 21-Jun-2023 21:58
Sampler	: [redacted]		
Site	: Pearce SD		
Quote number	: SY/139/19 B		
No. of samples received	: 18		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: Sample EP2307679-002 shows poor matrix spike recovery due to sample heterogeneity, confirmed by visual inspection.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230611	0967_QC109_230611	0967_SD007_230611	0967_SD015_230611	0967_SD020_230611
				Sampling date / time	11-Jun-2023 07:18	11-Jun-2023 07:18	11-Jun-2023 07:33	11-Jun-2023 08:01	11-Jun-2023 08:18
Compound	CAS Number	LOR	Unit		EP2307679-001	EP2307679-002	EP2307679-003	EP2307679-004	EP2307679-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**14.9**	**8.9**	**56.4**	**22.8**	**22.6**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	**0.0003**	**0.0030**	**0.0003**	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	**0.0002**	**0.0040**	**0.0003**	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0012**	**0.0022**	**0.0686**	**0.0057**	**0.0013**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0003**	**0.0132**	**0.0004**	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0134**	**0.0294**	**2.17**	**0.0655**	**0.0119**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	**0.192**	**0.0019**	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	**0.0016**	**0.0004**	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0083**	**0.0009**	**0.0004**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	**0.0012**	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	**0.0056**	**0.0005**	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	**0.0006**	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	**0.0015**	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	**0.0021**	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	**0.0135**	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	**0.0107**	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	**0.0108**	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	**0.0651**	**0.0009**	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	**0.0010**	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230611	0967_QC109_230611	0967_SD007_230611	0967_SD015_230611	0967_SD020_230611
				Sampling date / time	11-Jun-2023 07:18	11-Jun-2023 07:18	11-Jun-2023 07:33	11-Jun-2023 08:01	11-Jun-2023 08:18
Compound	CAS Number	LOR	Unit		EP2307679-001	EP2307679-002	EP2307679-003	EP2307679-004	EP2307679-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	**0.0007**	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	**0.0008**	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	**0.0068**	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	**0.0021**	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0146**	**0.0324**	**2.58**	**0.0768**	**0.0136**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0146**	**0.0316**	**2.24**	**0.0712**	**0.0132**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0146**	**0.0319**	**2.26**	**0.0733**	**0.0136**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**127**	**102**	**100**	**104**	**110**
13C8-PFOA	----	0.0002	%		**103**	**101**	**106**	**106**	**94.0**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_QC111_230611	0967_SD032_230611	0967_SD034_230611	0967_SD028_230611	0967_SD025_230611
				Sampling date / time	11-Jun-2023 08:18	11-Jun-2023 08:28	11-Jun-2023 08:41	11-Jun-2023 09:09	11-Jun-2023 09:21
Compound	CAS Number	LOR	Unit		EP2307679-006	EP2307679-007	EP2307679-008	EP2307679-009	EP2307679-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**21.2**	**17.5**	**33.6**	**15.3**	**33.1**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0013**	**0.0006**	**0.0037**	<0.0002	**0.0011**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0102**	**0.0212**	**0.0314**	**0.0016**	**0.0308**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	**0.0012**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0003**	<0.0002	**0.0004**	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_QC111_230611	0967_SD032_230611	0967_SD034_230611	0967_SD028_230611	0967_SD025_230611
				Sampling date / time	11-Jun-2023 08:18	11-Jun-2023 08:28	11-Jun-2023 08:41	11-Jun-2023 09:09	11-Jun-2023 09:21
Compound	CAS Number	LOR	Unit		EP2307679-006	EP2307679-007	EP2307679-008	EP2307679-009	EP2307679-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0120**	**0.0218**	**0.0367**	**0.0016**	**0.0319**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0115**	**0.0218**	**0.0351**	**0.0016**	**0.0319**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0120**	**0.0218**	**0.0355**	**0.0016**	**0.0319**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**108**	**114**	**114**	**102**	**105**
13C8-PFOA	----	0.0002	%		**122**	**93.0**	**99.0**	**96.0**	**97.5**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD022_230611	0967_SD060_230611	0967_SD058_230611	0967_SD055_230611	0967_SD036_230611
				Sampling date / time	11-Jun-2023 09:39	11-Jun-2023 10:06	11-Jun-2023 10:08	11-Jun-2023 10:13	11-Jun-2023 10:13
Compound	CAS Number	LOR	Unit		EP2307679-011	EP2307679-012	EP2307679-013	EP2307679-014	EP2307679-015
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**15.6**	**11.9**	**17.2**	**13.7**	**21.2**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0033**	**0.0003**	<0.0002	<0.0002	**0.0002**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0272**	**0.0003**	**0.0016**	<0.0002	**0.0063**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0004**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0005**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD022_230611	0967_SD060_230611	0967_SD058_230611	0967_SD055_230611	0967_SD036_230611
				Sampling date / time	11-Jun-2023 09:39	11-Jun-2023 10:06	11-Jun-2023 10:08	11-Jun-2023 10:13	11-Jun-2023 10:13
Compound	CAS Number	LOR	Unit		EP2307679-011	EP2307679-012	EP2307679-013	EP2307679-014	EP2307679-015
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		**0.0011**	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0339**	**0.0006**	**0.0016**	<0.0002	**0.0065**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0305**	**0.0006**	**0.0016**	<0.0002	**0.0065**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0318**	**0.0006**	**0.0016**	<0.0002	**0.0065**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**108**	**113**	**103**	**110**	**110**
13C8-PFOA	----	0.0002	%		**100**	**103**	**104**	**104**	**104**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230611	0967_SD061_230611	0967_SD062_230611	----	----
				Sampling date / time	11-Jun-2023 10:14	11-Jun-2023 10:15	11-Jun-2023 10:15	----	----
Compound	CAS Number	LOR	Unit		EP2307679-016	EP2307679-017	EP2307679-018	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**17.2**	**34.7**	**5.2**	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0014**	<0.0002	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0062**	<0.0002	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230611	0967_SD061_230611	0967_SD062_230611	----	----
				Sampling date / time	11-Jun-2023 10:14	11-Jun-2023 10:15	11-Jun-2023 10:15	----	----
Compound	CAS Number	LOR	Unit		EP2307679-016	EP2307679-017	EP2307679-018	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0076**	<0.0002	<0.0002	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0076**	<0.0002	<0.0002	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0076**	<0.0002	<0.0002	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**102**	**106**	**106**	----	----
13C8-PFOA	----	0.0002	%		**102**	**102**	**112**	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307679**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53446	Issue Date	: 21-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD		
Quote number	: SY/139/19 B		
No. of samples received	: 18		
No. of samples analysed	: 18		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5119547)									
EP2307679-001	0967_SD002_230611	EA055: Moisture Content	----	0.1	%	14.9	13.7	8.2	0% - 20%
EP2307679-010	0967_SD025_230611	EA055: Moisture Content	----	0.1	%	33.1	31.5	5.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115436)									
EP2307679-001	0967_SD002_230611	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0012	0.0011	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0134	0.0159	16.8	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307679-011	0967_SD022_230611	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	0.0002	0.0003	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0033	0.0036	8.3	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0272	0.0279	2.7	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0004	0.0003	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115436)									
EP2307679-001	0967_SD002_230611	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115436) - continued									
EP2307679-001	0967_SD002_230611	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307679-011	0967_SD022_230611	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0004	0.0005	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115436)									
EP2307679-001	0967_SD002_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307679-011	0967_SD022_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0011	0.0010	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115436)									
EP2307679-001	0967_SD002_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307679-011	0967_SD022_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115436)									
EP2307679-001	0967_SD002_230611	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0146	0.0170	15.2	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0146	0.0170	15.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0146	0.0170	15.2	0% - 20%
EP2307679-011	0967_SD022_230611	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0339	0.0351	3.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0305	0.0315	3.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0318	0.0332	4.3	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115436)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	113	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	104	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	105	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	98.7	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	102	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115436)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	110	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115436)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	110	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	99.0	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	114	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	113	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115436)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115436) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	113	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	118	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	117	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	108	54.8	124
EP231P: PFAS Sums (QCLot: 5115436)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115436)							
EP2307679-002	0967_QC109_230611	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	80.6	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	73.2	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# 17.3	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	88.8	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	80.6	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115436)							
EP2307679-002	0967_QC109_230611	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	103	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	103	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.7	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	98.5	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	95.3	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	111	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	98.4	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	91.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	108	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	98.0	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115436)							
EP2307679-002	0967_QC109_230611	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	81.1	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	79.3	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	103	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	112	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	94.5	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	118	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115436)							
EP2307679-002	0967_QC109_230611	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	106	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	136	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	# 148	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	87.1	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307679**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SD	Issue Date	: 21-Jun-2023
Sampler	: [redacted]	No. of samples received	: 18
Order number	: pfas-omp Pearce	No. of samples analysed	: 18

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307679--002	0967_QC109_230611	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	17.3 %	67.0-130%	**Recovery less than lower data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307679--002	0967_QC109_230611	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2307679--002	0967_QC109_230611	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	148 %	65.0-137%	**Recovery greater than upper data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD002_230611,	0967_QC109_230611,	**11-Jun-2023**	**----**	----	**----**	**20-Jun-2023**	25-Jun-2023	✓
0967_SD007_230611,	0967_SD015_230611,							
0967_SD020_230611,	0967_QC111_230611,							
0967_SD032_230611,	0967_SD034_230611,							
0967_SD028_230611,	0967_SD025_230611,							
0967_SD022_230611,	0967_SD060_230611,							
0967_SD058_230611,	0967_SD055_230611,							
0967_SD036_230611,	0967_SD049_230611,							
0967_SD061_230611,	0967_SD062_230611							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD002_230611, 0967_QC109_230611, 0967_SD015_230611, 0967_SD020_230611, 0967_QC111_230611, 0967_SD032_230611, 0967_SD034_230611, 0967_SD028_230611, 0967_SD025_230611, 0967_SD060_230611, 0967_SD058_230611, 0967_SD055_230611, 0967_SD061_230611, 0967_SD062_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**20-Jun-2023**	26-Jul-2023	✓
HDPE Soil Jar (EP231X)							
0967_SD007_230611, 0967_SD022_230611, 0967_SD036_230611, 0967_SD049_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X)							
0967_SD002_230611, 0967_QC109_230611, 0967_SD015_230611, 0967_SD020_230611, 0967_QC111_230611, 0967_SD032_230611, 0967_SD034_230611, 0967_SD028_230611, 0967_SD025_230611, 0967_SD060_230611, 0967_SD058_230611, 0967_SD055_230611, 0967_SD061_230611, 0967_SD062_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**20-Jun-2023**	26-Jul-2023	✓
HDPE Soil Jar (EP231X)							
0967_SD007_230611, 0967_SD022_230611, 0967_SD036_230611, 0967_SD049_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0967_SD002_230611, 0967_QC109_230611, 0967_SD015_230611, 0967_SD020_230611, 0967_QC111_230611, 0967_SD032_230611, 0967_SD034_230611, 0967_SD028_230611, 0967_SD025_230611, 0967_SD060_230611, 0967_SD058_230611, 0967_SD055_230611, 0967_SD061_230611, 0967_SD062_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**20-Jun-2023**	26-Jul-2023	✓
HDPE Soil Jar (EP231X)							
0967_SD007_230611, 0967_SD022_230611, 0967_SD036_230611, 0967_SD049_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD002_230611, 0967_QC109_230611, 0967_SD015_230611, 0967_SD020_230611, 0967_QC111_230611, 0967_SD032_230611, 0967_SD034_230611, 0967_SD028_230611, 0967_SD025_230611, 0967_SD060_230611, 0967_SD058_230611, 0967_SD055_230611, 0967_SD061_230611, 0967_SD062_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**20-Jun-2023**	26-Jul-2023	✓
HDPE Soil Jar (EP231X)							
0967_SD007_230611, 0967_SD022_230611, 0967_SD036_230611, 0967_SD049_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD002_230611, 0967_QC109_230611, 0967_SD015_230611, 0967_SD020_230611, 0967_QC111_230611, 0967_SD032_230611, 0967_SD034_230611, 0967_SD028_230611, 0967_SD025_230611, 0967_SD060_230611, 0967_SD058_230611, 0967_SD055_230611, 0967_SD061_230611, 0967_SD062_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**20-Jun-2023**	26-Jul-2023	✓
HDPE Soil Jar (EP231X)							
0967_SD007_230611, 0967_SD022_230611, 0967_SD036_230611, 0967_SD049_230611	**11-Jun-2023**	**16-Jun-2023**	08-Dec-2023	✓	**21-Jun-2023**	26-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307679**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 3
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53446	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:30	Issue Date	: 13-Jun-2023
Client Requested Due Date	: 22-Jun-2023	Scheduled Reporting Date	: **22-Jun-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.1 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 18 / 18

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307679-001	11-Jun-2023 07:18	0967_SD002_230611	✓	✓
EP2307679-002	11-Jun-2023 07:18	0967_QC109_230611	✓	✓
EP2307679-003	11-Jun-2023 07:33	0967_SD007_230611	✓	✓
EP2307679-004	11-Jun-2023 08:01	0967_SD015_230611	✓	✓
EP2307679-005	11-Jun-2023 08:18	0967_SD020_230611	✓	✓
EP2307679-006	11-Jun-2023 08:18	0967_QC111_230611	✓	✓
EP2307679-007	11-Jun-2023 08:28	0967_SD032_230611	✓	✓
EP2307679-008	11-Jun-2023 08:41	0967_SD034_230611	✓	✓
EP2307679-009	11-Jun-2023 09:09	0967_SD028_230611	✓	✓
EP2307679-010	11-Jun-2023 09:21	0967_SD025_230611	✓	✓
EP2307679-011	11-Jun-2023 09:39	0967_SD022_230611	✓	✓
EP2307679-012	11-Jun-2023 10:06	0967_SD060_230611	✓	✓
EP2307679-013	11-Jun-2023 10:08	0967_SD058_230611	✓	✓
EP2307679-014	11-Jun-2023 10:13	0967_SD055_230611	✓	✓
EP2307679-015	11-Jun-2023 10:13	0967_SD036_230611	✓	✓
EP2307679-016	11-Jun-2023 10:14	0967_SD049_230611	✓	✓
EP2307679-017	11-Jun-2023 10:15	0967_SD061_230611	✓	✓
EP2307679-018	11-Jun-2023 10:15	0967_SD062_230611	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307679

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967_PFASOMP-23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 53445 53446 **# Samples:** **Sampler:** [redacted]

Phone: ( )

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 12/06/23 8AM	Date / Time: 12/6 1230	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 53446 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD002		11/06/2023 07:18 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_QC109		11/06/2023 07:18 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD007		11/06/2023 07:33 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD015		11/06/2023 08:01 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD020		11/06/2023 08:18 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_QC111		11/06/2023 08:18 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD032		11/06/2023 08:28 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD034		11/06/2023 08:41 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_SD028		11/06/2023 09:09 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 53446 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SD025		11/06/2023 09:21 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
011	0967_SD022		11/06/2023 09:39 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
012	0967_SD060		11/06/2023 10:06 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
013	0967_SD058		11/06/2023 10:08 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
014	0967_SD055		11/06/2023 10:13 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
015	0967_SD036		11/06/2023 10:13 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
016	0967_SD049		11/06/2023 10:14 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
017	0967_SD061		11/06/2023 10:15 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
018	0967_SD062		11/06/2023 10:15 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 53446 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD002	HDPE Soil Jar	200 mL	00621122035179	Grey	No	
002	0967_QC109	HDPE Soil Jar	200 mL	00621122079214	Grey	No	
003	0967_SD007	HDPE Soil Jar	200 mL	00621122079784	Grey	No	
004	0967_SD015	HDPE Soil Jar	200 mL	00621122079198	Grey	No	
005	0967_SD020	HDPE Soil Jar	200 mL	00621122035182	Grey	No	
006	0967_QC111	HDPE Soil Jar	200 mL	00621122079219	Grey	No	
007	0967_SD032	HDPE Soil Jar	200 mL	00621122035177	Grey	No	
008	0967_SD034	HDPE Soil Jar	200 mL	00621122079249	Grey	No	
009	0967_SD028	HDPE Soil Jar	200 mL	00621122079840	Grey	No	
010	0967_SD025	HDPE Soil Jar	200 mL	00621122079798	Grey	No	
011	0967_SD022	HDPE Soil Jar	200 mL	00621122079230	Grey	No	
012	0967_SD060	HDPE Soil Jar	200 mL	00621122079841	Grey	No	
013	0967_SD058	HDPE Soil Jar	200 mL	00621122079243	Grey	No	
014	0967_SD055	HDPE Soil Jar	200 mL	00621122035087	Grey	No	
015	0967_SD036	HDPE Soil Jar	200 mL	00621122079171	Grey	No	
016	0967_SD049	HDPE Soil Jar	200 mL	00621122079156	Grey	No	
017	0967_SD061	HDPE Soil Jar	200 mL	00621122035175	Grey	No	
018	0967_SD062	HDPE Soil Jar	200 mL	00621122079244	Grey	No	

Total Bottle Count: ALS: 18, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307715**	Page	: 1 of 12
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53465	Issue Date	: 26-Jun-2023 12:49
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230612	0967_SW007_230612	0967_SW018_230612	0967_SW010_230612	0967_SW015_230612
				Sampling date / time	12-Jun-2023 07:28	12-Jun-2023 07:52	12-Jun-2023 08:05	12-Jun-2023 08:13	12-Jun-2023 08:20
Compound	CAS Number	LOR	Unit		EP2307715-001	EP2307715-002	EP2307715-003	EP2307715-004	EP2307715-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		210	114	129	42	40
Total Alkalinity as CaCO3	----	1	mg/L		210	114	129	42	40
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		41	23	16	7	8
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		283	52	31	27	25
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		42	32	22	6	5
Magnesium	7439-95-4	1	mg/L		14	5	3	2	2
Sodium	7440-23-5	1	mg/L		235	50	48	31	26
Potassium	7440-09-7	1	mg/L		19	10	10	8	6
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		13.0	4.22	3.78	1.75	1.67
ø Total Cations	----	0.01	meq/L		14.0	4.44	3.69	2.02	1.70
ø Ionic Balance	----	0.01	%		3.42	2.49	1.29	7.19	0.82
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.02	4.38	0.06	2.46	1.47
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.02	4.09	0.06	2.19	1.66
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.17	42.4	0.48	17.9	9.76
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	5.69	0.03	1.26	0.48
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.44	230	1.04	36.4	16.6
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	3.81	<0.02	0.06	0.06
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	2.2	<0.1	1.5	0.8
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.03	3.32	0.03	1.62	0.98
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	15.8	0.11	6.77	4.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230612	0967_SW007_230612	0967_SW018_230612	0967_SW010_230612	0967_SW015_230612
				Sampling date / time	12-Jun-2023 07:28	12-Jun-2023 07:52	12-Jun-2023 08:05	12-Jun-2023 08:13	12-Jun-2023 08:20
Compound	CAS Number	LOR	Unit		EP2307715-001	EP2307715-002	EP2307715-003	EP2307715-004	EP2307715-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.04**	**1.46**	<0.02	**0.58**	**0.34**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.04**	**3.52**	**0.02**	**1.36**	**0.67**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.10**	<0.02	**0.04**	**0.03**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	**0.06**	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	**0.07**	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	**0.15**	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	**0.06**	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	**2.54**	<0.02	**0.04**	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	**0.03**	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.36**	<0.05	**0.07**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.37**	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230612	0967_SW007_230612	0967_SW018_230612	0967_SW010_230612	0967_SW015_230612
				Sampling date / time	12-Jun-2023 07:28	12-Jun-2023 07:52	12-Jun-2023 08:05	12-Jun-2023 08:13	12-Jun-2023 08:20
Compound	CAS Number	LOR	Unit		EP2307715-001	EP2307715-002	EP2307715-003	EP2307715-004	EP2307715-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.84**	**320**	**1.83**	**72.2**	**36.9**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.61**	**272**	**1.52**	**54.3**	**26.4**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.82**	**304**	**1.74**	**68.7**	**34.6**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.5**	**98.1**	**85.2**	**85.8**	**86.6**
13C8-PFOA	----	0.02	%		**99.1**	**99.0**	**94.0**	**102**	**93.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230612	0967_QC113_230612	0967_SW032_230612	0967_SW034_230612	0967_SW028_230612
				Sampling date / time	12-Jun-2023 08:34	12-Jun-2023 08:36	12-Jun-2023 08:51	12-Jun-2023 09:09	12-Jun-2023 09:23
Compound	CAS Number	LOR	Unit		EP2307715-006	EP2307715-007	EP2307715-008	EP2307715-009	EP2307715-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		119	122	86	72	16
Total Alkalinity as CaCO3	----	1	mg/L		119	122	86	72	16
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		14	15	28	12	98
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		28	28	69	24	556
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		34	32	18	21	43
Magnesium	7439-95-4	1	mg/L		5	5	6	4	58
Sodium	7440-23-5	1	mg/L		38	38	65	25	288
Potassium	7440-09-7	1	mg/L		8	8	9	5	11
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		3.46	3.54	4.25	2.36	18.0
ø Total Cations	----	0.01	meq/L		3.96	3.86	4.45	2.59	19.7
ø Ionic Balance	----	0.01	%		6.82	4.40	2.32	4.58	4.46
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.05	0.04	0.03	0.54	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.04	0.04	0.02	0.48	0.03
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.39	0.38	0.23	4.30	0.18
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		0.02	<0.02	<0.02	0.20	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.70	0.62	0.43	8.72	0.22
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	0.3	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	0.34	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	0.08	0.05	1.34	0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230612	0967_QC113_230612	0967_SW032_230612	0967_SW034_230612	0967_SW028_230612
				Sampling date / time	12-Jun-2023 08:34	12-Jun-2023 08:36	12-Jun-2023 08:51	12-Jun-2023 09:09	12-Jun-2023 09:23
Compound	CAS Number	LOR	Unit		EP2307715-006	EP2307715-007	EP2307715-008	EP2307715-009	EP2307715-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.12**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	**0.01**	**0.30**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230612	0967_QC113_230612	0967_SW032_230612	0967_SW034_230612	0967_SW028_230612
				Sampling date / time	12-Jun-2023 08:34	12-Jun-2023 08:36	12-Jun-2023 08:51	12-Jun-2023 09:09	12-Jun-2023 09:23
Compound	CAS Number	LOR	Unit		EP2307715-006	EP2307715-007	EP2307715-008	EP2307715-009	EP2307715-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.30**	**1.18**	**0.77**	**16.6**	**0.48**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.09**	**1.00**	**0.66**	**13.0**	**0.40**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.24**	**1.14**	**0.75**	**16.0**	**0.45**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.2**	**85.2**	**83.5**	**88.8**	**99.6**
13C8-PFOA	----	0.02	%		**94.7**	**97.7**	**100**	**95.9**	**102**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230612	0967_SW022_230612	0967_QC116_230612	0967_SW055_230612	----
				Sampling date / time	12-Jun-2023 09:53	12-Jun-2023 10:08	12-Jun-2023 10:11	12-Jun-2023 10:58	----
Compound	CAS Number	LOR	Unit		EP2307715-011	EP2307715-012	EP2307715-013	EP2307715-014	--------
					Result	Result	Result	Result	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		40	82	82	38	----
Total Alkalinity as CaCO3	----	1	mg/L		40	82	82	38	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		10	38	38	64	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		26	167	166	137	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		11	31	32	27	----
Magnesium	7439-95-4	1	mg/L		3	16	17	11	----
Sodium	7440-23-5	1	mg/L		24	110	112	89	----
Potassium	7440-09-7	1	mg/L		2	6	6	32	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		1.74	7.14	7.11	5.96	----
ø Total Cations	----	0.01	meq/L		1.89	7.80	8.02	6.94	----
ø Ionic Balance	----	0.01	%		4.13	4.43	6.01	7.64	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.04	0.04	0.03	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.06	0.03	0.03	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.69	0.27	0.25	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		0.03	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		2.15	0.46	0.46	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	0.14	0.13	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.05	0.14	0.13	<0.02	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230612	0967_SW022_230612	0967_QC116_230612	0967_SW055_230612	----
				Sampling date / time	12-Jun-2023 09:53	12-Jun-2023 10:08	12-Jun-2023 10:11	12-Jun-2023 10:58	----
Compound	CAS Number	LOR	Unit		EP2307715-011	EP2307715-012	EP2307715-013	EP2307715-014	--------
					Result	Result	Result	Result	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.03**	**0.04**	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	**0.02**	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.22**	**0.23**	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230612	0967_SW022_230612	0967_QC116_230612	0967_SW055_230612	----
				Sampling date / time	12-Jun-2023 09:53	12-Jun-2023 10:08	12-Jun-2023 10:11	12-Jun-2023 10:58	----
Compound	CAS Number	LOR	Unit		EP2307715-011	EP2307715-012	EP2307715-013	EP2307715-014	--------
					Result	Result	Result	Result	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.04**	**1.35**	**1.32**	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**2.84**	**0.73**	**0.71**	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**2.95**	**1.32**	**1.29**	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**117**	**89.6**	**89.9**	**84.8**	----
13C8-PFOA	----	0.02	%		**104**	**99.6**	**93.3**	**97.9**	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307715**	Page	: 1 of 12
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53465	Issue Date	: 26-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5120065)									
EP2307678-006	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	35	35	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	35	35	0.0	0% - 20%
EP2307678-016	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	43	41	3.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	43	41	3.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5120066)									
EP2307715-006	0967_SW020_230612	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	119	121	1.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	119	121	1.5	0% - 20%
EP2307718-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	50	49	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	50	49	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111219)									
EP2307675-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	12	12	0.0	0% - 50%
EP2307715-006	0967_SW020_230612	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	14	15	0.0	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111221)									
EP2307675-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	28	26	6.3	0% - 20%
EP2307715-006	0967_SW020_230612	ED045G: Chloride	16887-00-6	1	mg/L	28	28	0.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 5111762)									
EP2307715-001	0967_SW002_230612	ED093F: Calcium	7440-70-2	1	mg/L	42	39	5.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	14	13	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	235	233	0.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	19	19	0.0	0% - 50%
EP2307715-011	0967_SW025_230612	ED093F: Calcium	7440-70-2	1	mg/L	11	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	24	25	4.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	0967_SW055_230612	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.51	0.56	8.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.22	1.27	4.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.07	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	2.38	2.16	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.50	5.69	3.3	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.32	0.32	0.0	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.36	0.34	5.0	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.11	0.10	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125772)									
EP2307715-014	0967_SW055_230612	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.11	0.12	10.4	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.17	0.17	0.0	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.22	0.21	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.72	0.67	6.1	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.07	0.06	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.2	0.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125772)									
EP2307715-014	0967_SW055_230612	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125798) - continued									
EP2307798-003	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	0967_SW055_230612	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125798) - continued									
EP2307798-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125772)									
EP2307715-014	0967_SW055_230612	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.07	2.19	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.73	1.83	5.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.97	2.08	5.4	0% - 20%
EP2307798-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	10.0	9.92	1.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	7.88	7.85	0.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	9.58	9.48	1.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5120065)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	113	87.8	118
				<1	200 mg/L	91.7	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5120066)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	107	87.8	118
				<1	200 mg/L	92.2	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.7	89.9	112
				<1	500 mg/L	98.2	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	104	88.6	113
				<1	1000 mg/L	93.9	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5111762)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	110	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.9	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125772)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	113	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	106	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125782)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.1	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.3	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.7	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	111	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	106	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	83.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125772)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	106	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	101	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125782)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	109	69.0	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125782) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	103	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	115	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	113	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	85.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	99.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125772)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	122	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	99.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	114	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125782)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	115	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	107	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	119	62.2	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125782) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	116	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	108	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	111	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	103	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125772)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	108	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	114	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	100	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125782)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	108	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	102	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	104	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	123	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	110	64.2	133
EP231P: PFAS Sums (QCLot: 5125772)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5125782)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125798)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)							
EP2307675-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	110	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)							
EP2307675-010	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	95.5	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	116	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	123	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.4	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	98.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	119	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	109	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	96.1	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	99.1	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	96.0	69.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798) - continued							
EP2307798-008	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	103	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	106	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	101	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	112	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	101	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	96.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	113	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	114	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	110	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	108	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307715**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SW - JS	Issue Date	: 26-Jun-2023
Sampler	: [redacted]	No. of samples received	: 14
Order number	: pfas-omp Pearce	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	3				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	3	45	6.67	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	45	2.22	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW002_230612, 0967_SW007_230612, 0967_SW018_230612, 0967_SW010_230612, 0967_SW015_230612, 0967_SW020_230612, 0967_QC113_230612, 0967_SW032_230612, 0967_SW034_230612, 0967_SW028_230612, 0967_SW025_230612, 0967_SW022_230612, 0967_QC116_230612, 0967_SW055_230612	**12-Jun-2023**	**----**	----	**----**	**20-Jun-2023**	26-Jun-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW002_230612, 0967_SW007_230612, 0967_SW018_230612, 0967_SW010_230612, 0967_SW015_230612, 0967_SW020_230612, 0967_QC113_230612, 0967_SW032_230612, 0967_SW034_230612, 0967_SW028_230612, 0967_SW025_230612, 0967_SW022_230612, 0967_QC116_230612, 0967_SW055_230612	**12-Jun-2023**	**----**	----	**----**	**23-Jun-2023**	10-Jul-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**----**	----	----	**23-Jun-2023**	10-Jul-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**----**	----	----	**19-Jun-2023**	19-Jun-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW002_230612,	0967_SW007_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW018_230612,	0967_SW010_230612,							
0967_SW015_230612,	0967_SW020_230612,							
0967_QC113_230612,	0967_SW032_230612,							
0967_SW034_230612,	0967_SW028_230612,							
0967_SW025_230612,	0967_SW022_230612,							
0967_QC116_230612,	0967_SW055_230612							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	45	**6.67**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	45	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	45	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	45	**2.22**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307715**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 3
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53465	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:15	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.5 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 14 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307715-001	12-Jun-2023 07:28	0967_SW002_230612	✓	✓
EP2307715-002	12-Jun-2023 07:52	0967_SW007_230612	✓	✓
EP2307715-003	12-Jun-2023 08:05	0967_SW018_230612	✓	✓
EP2307715-004	12-Jun-2023 08:13	0967_SW010_230612	✓	✓
EP2307715-005	12-Jun-2023 08:20	0967_SW015_230612	✓	✓
EP2307715-006	12-Jun-2023 08:34	0967_SW020_230612	✓	✓
EP2307715-007	12-Jun-2023 08:36	0967_QC113_230612	✓	✓
EP2307715-008	12-Jun-2023 08:51	0967_SW032_230612	✓	✓
EP2307715-009	12-Jun-2023 09:09	0967_SW034_230612	✓	✓
EP2307715-010	12-Jun-2023 09:23	0967_SW028_230612	✓	✓
EP2307715-011	12-Jun-2023 09:53	0967_SW025_230612	✓	✓
EP2307715-012	12-Jun-2023 10:08	0967_SW022_230612	✓	✓
EP2307715-013	12-Jun-2023 10:11	0967_QC116_230612	✓	✓
EP2307715-014	12-Jun-2023 10:58	0967_SW055_230612	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307715

Telephone +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0067_PTSOMD_23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: ~~53465~~ 53466 ~~53475~~ 53474 **# Samples:** 1 Bottle **Sampler:** [redacted]

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 12/6/23 ~12:00pm.	Date / Time: 12/6 1215	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53465 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW002		12/06/2023 07:28 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW007		12/06/2023 07:52 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW018		12/06/2023 08:05 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_SW010		12/06/2023 08:13 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW015		12/06/2023 08:20 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_SW020		12/06/2023 08:34 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_QC113		12/06/2023 08:36 AM	WATER	ALS: 3 Non ALS: 0	No	X		
008	0967_SW032		12/06/2023 08:51 AM	WATER	ALS: 3 Non ALS: 0	No	X		
009	0967_SW034		12/06/2023 09:09 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53465 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW026		12/06/2023 09:23 AM	WATER	ALS: 3 Non ALS: 0	No	X		
011	0967_SW025		12/06/2023 09:53 AM	WATER	ALS: 3 Non ALS: 0	No	X		
012	0967_SW022		12/06/2023 10:08 AM	WATER	ALS: 3 Non ALS: 0	No	X		
013	0967_QC116		12/06/2023 10:11 AM	WATER	ALS: 3 Non ALS: 0	No	X		
014	0967_SW055		12/06/2023 10:58 AM	WATER	ALS: 5 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53465 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822082853	Grey	No	
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822082902	Grey	No	
001	0967_SW002	Clear Plastic Bottle - Natural	125 mL	00070522067166	Green	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822062530	Grey	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822086380	Grey	No	
002	0967_SW007	Clear Plastic Bottle - Natural	125 mL	00070522067123	Green	No	
003	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522068282	Green	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062581	Grey	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062538	Grey	No	
004	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522067162	Green	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062629	Grey	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062449	Grey	No	
005	0967_SW015	HDPE (no PTFE)	20 mL	00350822062491	Grey	No	
005	0967_SW015	HDPE (no PTFE)	20 mL	00350822062479	Grey	No	
005	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522068408	Green	No	
006	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070522067083	Green	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062518	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062648	Grey	No	
007	0967_QC113	Clear Plastic Bottle - Natural	125 mL	00070522067182	Green	No	
007	0967_QC113	HDPE (no PTFE)	20 mL	00350822062602	Grey	No	
007	0967_QC113	HDPE (no PTFE)	20 mL	00350822086381	Grey	No	
008	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522067158	Green	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822082698	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822082834	Grey	No	
009	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522067128	Green	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062643	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 53465 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062429	Grey	No	
010	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522068413	Green	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062471	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062414	Grey	No	
011	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522068403	Green	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062547	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062416	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062557	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062595	Grey	No	
012	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522067069	Green	No	
013	0967_QC116	Clear Plastic Bottle - Natural	125 mL	00070522068385	Green	No	
013	0967_QC116	HDPE (no PTFE)	20 mL	00350822062413	Grey	No	
013	0967_QC116	HDPE (no PTFE)	20 mL	00350822062438	Grey	No	
014	0967_SW055	HDPE (no PTFE)	20 mL	00350822062662	Grey	No	
014	0967_SW055	HDPE (no PTFE)	20 mL	00350822086387	Grey	No	
014	0967_SW055	Clear Plastic Bottle - Natural	125 mL	00070522067127	Green	No	
014	0967_SW055	HDPE (no PTFE)	20 mL	00350822062634	Grey	No	
014	0967_SW055	HDPE (no PTFE)	20 mL	00350822062519	Grey	No	

Total Bottle Count: ALS: 44, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307716**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Jun-2023
C-O-C number	: 53466	Issue Date	: 23-Jun-2023 09:18
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: High failing matrix spike for some analytes due to possible sample heterogeneity, confirmed by visual inspection.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230612	0967_SD007_230612	0967_SD015_230612	0967_SD020_230612	0967_SD032_230612
				Sampling date / time	12-Jun-2023 07:29	12-Jun-2023 07:52	12-Jun-2023 08:21	12-Jun-2023 08:33	12-Jun-2023 08:50
Compound	CAS Number	LOR	Unit		EP2307716-001	EP2307716-002	EP2307716-003	EP2307716-004	EP2307716-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**21.8**	**28.5**	**17.5**	**19.2**	**37.2**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	**0.0038**	**0.0002**	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	**0.0077**	**0.0003**	<0.0002	**0.0002**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0010**	**0.0814**	**0.0024**	**0.0006**	**0.0014**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0198**	**0.0002**	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0188**	**2.81**	**0.0268**	**0.0056**	**0.0305**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0004**	**0.0862**	**0.0004**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	**0.002**	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	**0.0027**	**0.0003**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0002**	**0.0088**	**0.0008**	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	**0.0015**	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		**0.0003**	**0.0078**	**0.0003**	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	**0.0005**	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		**0.0008**	**0.0013**	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.0015**	**0.0022**	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0020**	**0.0115**	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		**0.0007**	**0.0055**	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		**0.0007**	**0.0034**	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.113**	**0.0002**	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	**0.0039**	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD002_230612	0967_SD007_230612	0967_SD015_230612	0967_SD020_230612	0967_SD032_230612
			Sampling date / time	12-Jun-2023 07:29	12-Jun-2023 07:52	12-Jun-2023 08:21	12-Jun-2023 08:33	12-Jun-2023 08:50
Compound	CAS Number	LOR	Unit	EP2307716-001	EP2307716-002	EP2307716-003	EP2307716-004	EP2307716-005
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	**0.0007**	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	**0.0009**	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	**0.0015**	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	**0.0022**	**0.0080**	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	**0.0011**	**0.0024**	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0297**	**3.19**	**0.0319**	**0.0062**	**0.0321**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0198**	**2.89**	**0.0292**	**0.0062**	**0.0319**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0225**	**2.93**	**0.0308**	**0.0062**	**0.0319**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**100**	**102**	**108**	**110**	**108**
13C8-PFOA	----	0.0002	%	**103**	**106**	**108**	**112**	**110**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_QC114_230612	0967_SD034_230612	0967_SD028_230612	0967_SD025_230612	0967_QC115_230612
				Sampling date / time	12-Jun-2023 09:04	12-Jun-2023 09:10	12-Jun-2023 09:23	12-Jun-2023 09:52	12-Jun-2023 09:52
Compound	CAS Number	LOR	Unit		EP2307716-006	EP2307716-007	EP2307716-008	EP2307716-009	EP2307716-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**30.4**	**14.4**	**20.0**	**41.7**	**33.3**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0014**	**0.0018**	**0.0004**	**0.0047**	**0.0032**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0005**	**0.0003**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0224**	**0.0338**	**0.0021**	**0.0672**	**0.0399**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.0011**	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	**0.0005**	**0.0003**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_QC114_230612	0967_SD034_230612	0967_SD028_230612	0967_SD025_230612	0967_QC115_230612
				Sampling date / time	12-Jun-2023 09:04	12-Jun-2023 09:10	12-Jun-2023 09:23	12-Jun-2023 09:52	12-Jun-2023 09:52
Compound	CAS Number	LOR	Unit		EP2307716-006	EP2307716-007	EP2307716-008	EP2307716-009	EP2307716-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0238**	**0.0372**	**0.0025**	**0.0734**	**0.0437**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0238**	**0.0356**	**0.0025**	**0.0719**	**0.0431**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0238**	**0.0358**	**0.0025**	**0.0726**	**0.0434**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**103**	**120**	**103**	**104**	**99.5**
13C8-PFOA	----	0.0002	%		**108**	**112**	**104**	**105**	**103**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD022_230612	0967_SD055_230612	----	----	----
				Sampling date / time	12-Jun-2023 10:07	12-Jun-2023 10:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2307716-011	EP2307716-012	--------	--------	--------
					Result	Result	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**29.3**	**64.2**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0011**	<0.0002	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0067**	**0.0015**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0004**	<0.0002	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0004**	<0.0002	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD022_230612	0967_SD055_230612	----	----	----
			Sampling date / time	12-Jun-2023 10:07	12-Jun-2023 10:57	----	----	----
Compound	CAS Number	LOR	Unit	EP2307716-011	EP2307716-012	--------	--------	--------
				Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	**0.0008**	<0.0005	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	----	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0094**	**0.0015**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0078**	**0.0015**	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0094**	**0.0015**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**104**	**121**	----	----	----
13C8-PFOA	----	0.0002	%	**108**	**105**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307716**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Jun-2023
C-O-C number	: 53466	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 12		
No. of samples analysed	: 12		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5120418)									
EP2307716-001	0967_SD002_230612	EA055: Moisture Content	----	0.1	%	21.8	21.9	0.5	0% - 20%
EP2307716-010	0967_QC115_230612	EA055: Moisture Content	----	0.1	%	33.3	39.7	17.7	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115441)									
EP2307674-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0007	0.0006	17.1	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0054	0.0052	3.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307716-006	0967_QC114_230612	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0014	0.0014	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0224	0.0190	16.4	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115441)									
EP2307674-008	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115441) - continued									
EP2307674-008	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307716-006	0967_QC114_230612	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115441)									
EP2307674-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307716-006	0967_QC114_230612	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115441)									
EP2307674-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307716-006	0967_QC114_230612	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115441)									
EP2307674-008	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0063	0.0058	8.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0061	0.0058	5.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0063	0.0058	8.3	0% - 20%
EP2307716-006	0967_QC114_230612	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0238	0.0204	15.4	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115441)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	123	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	118	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	100	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	112	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	107	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	112	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115441)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	125	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	109	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115441)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	138	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.8	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	107	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	121	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115441)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115441) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	122	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	136	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	125	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	122	54.8	124
EP231P: PFAS Sums (QCLot: 5115441)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115441)							
EP2307674-009	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	124	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	# 136	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	# 144	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	121	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	115	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115441)							
EP2307674-009	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	126	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	112	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	99.4	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	94.7	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	107	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	109	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	95.2	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.7	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	93.5	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	105	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115441)							
EP2307674-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	110	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	129	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	84.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	102	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	105	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	102	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115441)							
EP2307674-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	119	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	112	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	114	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	109	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307716**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SD - JS	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 12
Order number	: pfas-omp Pearce	No. of samples analysed	: 12

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	Anonymous	**Perfluoropentane sulfonic acid (PFPeS)**	2706-91-4	136 %	73.0-123%	**Recovery greater than upper data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	Anonymous	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	144 %	67.0-130%	**Recovery greater than upper data quality objective**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307674--009	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**----**	----	**----**	**21-Jun-2023**	26-Jun-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**19-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**19-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**19-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**19-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
0967_SD002_230612,	0967_SD007_230612,	**12-Jun-2023**	**19-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	29-Jul-2023	✓
0967_SD015_230612,	0967_SD020_230612,							
0967_SD032_230612,	0967_QC114_230612,							
0967_SD034_230612,	0967_SD028_230612,							
0967_SD025_230612,	0967_QC115_230612,							
0967_SD022_230612,	0967_SD055_230612							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307716**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53466	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:15	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.5 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 12 / 12

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307716-001	12-Jun-2023 07:29	0967_SD002_230612	✓	✓
EP2307716-002	12-Jun-2023 07:52	0967_SD007_230612	✓	✓
EP2307716-003	12-Jun-2023 08:21	0967_SD015_230612	✓	✓
EP2307716-004	12-Jun-2023 08:33	0967_SD020_230612	✓	✓
EP2307716-005	12-Jun-2023 08:50	0967_SD032_230612	✓	✓
EP2307716-006	12-Jun-2023 09:04	0967_QC114_230612	✓	✓
EP2307716-007	12-Jun-2023 09:10	0967_SD034_230612	✓	✓
EP2307716-008	12-Jun-2023 09:23	0967_SD028_230612	✓	✓
EP2307716-009	12-Jun-2023 09:52	0967_SD025_230612	✓	✓
EP2307716-010	12-Jun-2023 09:52	0967_QC115_230612	✓	✓
EP2307716-011	12-Jun-2023 10:07	0967_SD022_230612	✓	✓
EP2307716-012	12-Jun-2023 10:57	0967_SD055_230612	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307716

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967_PHASOMP_23 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: 53665, 53666, 53673, 53674 **# Samples:** 1 Bski **Sampler:** [redacted]
Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 12/6/23 ~ 12:00pm.	Date / Time: 12/6 1215	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: **53466** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD002		12/06/2023 07:29 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD007		12/06/2023 07:52 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD015		12/06/2023 08:21 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD020		12/06/2023 08:33 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD032		12/06/2023 08:50 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_QC114		12/06/2023 09:04 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD034		12/06/2023 09:10 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD028		12/06/2023 09:23 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_SD025		12/06/2023 09:52 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 53466 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_QC115		12/06/2023 09:52 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
011	0967_SD022		12/06/2023 10:07 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
012	0967_SD055		12/06/2023 10:57 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 53466 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD002	HDPE Soil Jar	200 mL	00621122035106	Grey	No	
002	0967_SD007	HDPE Soil Jar	200 mL	00621122035093	Grey	No	
003	0967_SD015	HDPE Soil Jar	200 mL	00621122079210	Grey	No	
004	0967_SD020	HDPE Soil Jar	200 mL	00621122079236	Grey	No	
005	0967_SD032	HDPE Soil Jar	200 mL	00621122035085	Grey	No	
006	0967_QC114	HDPE Soil Jar	200 mL	00621122079240	Grey	No	
007	0967_SD034	HDPE Soil Jar	200 mL	00621122079828	Grey	No	
008	0967_SD028	HDPE Soil Jar	200 mL	00621122079835	Grey	No	
009	0967_SD025	HDPE Soil Jar	200 mL	00621122079822	Grey	No	
010	0967_QC115	HDPE Soil Jar	200 mL	00621122035148	Grey	No	
011	0967_SD022	HDPE Soil Jar	200 mL	00621122035107	Grey	No	
012	0967_SD055	HDPE Soil Jar	200 mL	00621122079837	Grey	No	

Total Bottle Count: ALS: 12, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307718**	Page	: 1 of 13
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53474	Issue Date	: 23-Jun-2023 17:24
Sampler	: [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC402_230612	----	----	----	----
				Sampling date / time	12-Jun-2023 11:58	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307718-013	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC402_230612	----	----	----	----
				Sampling date / time	12-Jun-2023 11:58	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307718-013	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	----	----	----	----
13C8-PFOA	----	0.02	%		**106**	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230612	0967_SW048_230612	0967_SW066_230612	0967_SW036_230612	0967_QC118_230612
				Sampling date / time	12-Jun-2023 08:30	12-Jun-2023 10:10	12-Jun-2023 10:10	12-Jun-2023 10:36	12-Jun-2023 10:37
Compound	CAS Number	LOR	Unit		EP2307718-001	EP2307718-002	EP2307718-003	EP2307718-004	EP2307718-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**49**	**50**	**101**	**65**	**65**
Total Alkalinity as CaCO3	----	1	mg/L		**49**	**50**	**101**	**65**	**65**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**104**	**106**	**32**	**30**	**30**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**332**	**515**	**174**	**86**	**82**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**34**	**34**	**29**	**25**	**25**
Magnesium	7439-95-4	1	mg/L		**36**	**54**	**16**	**9**	**9**
Sodium	7440-23-5	1	mg/L		**202**	**304**	**123**	**62**	**62**
Potassium	7440-09-7	1	mg/L		**12**	**16**	**9**	**7**	**7**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**12.5**	**17.7**	**7.59**	**4.35**	**4.24**
ø **Total Cations**	----	0.01	meq/L		**13.8**	**19.8**	**8.34**	**4.86**	**4.86**
ø **Ionic Balance**	----	0.01	%		**4.73**	**5.44**	**4.72**	**5.59**	**6.90**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.03**	**0.03**	<0.02	**0.12**	**0.12**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	**0.02**	<0.02	**0.12**	**0.12**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.19**	**0.21**	<0.01	**0.80**	**0.78**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	**0.03**	**0.03**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.31**	**0.43**	<0.01	**1.74**	**1.70**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.03**	**0.04**	<0.02	**0.08**	**0.08**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.06**	**0.07**	<0.02	**0.25**	**0.25**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230612	0967_SW048_230612	0967_SW066_230612	0967_SW036_230612	0967_QC118_230612
				Sampling date / time	12-Jun-2023 08:30	12-Jun-2023 10:10	12-Jun-2023 10:10	12-Jun-2023 10:36	12-Jun-2023 10:37
Compound	CAS Number	LOR	Unit		EP2307718-001	EP2307718-002	EP2307718-003	EP2307718-004	EP2307718-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.02**	**0.02**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	**0.01**	<0.01	**0.05**	**0.06**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230612	0967_SW048_230612	0967_SW066_230612	0967_SW036_230612	0967_QC118_230612
				Sampling date / time	12-Jun-2023 08:30	12-Jun-2023 10:10	12-Jun-2023 10:10	12-Jun-2023 10:36	12-Jun-2023 10:37
Compound	CAS Number	LOR	Unit		EP2307718-001	EP2307718-002	EP2307718-003	EP2307718-004	EP2307718-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.65**	**0.81**	<0.01	**3.21**	**3.16**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.50**	**0.64**	<0.01	**2.54**	**2.48**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.63**	**0.79**	<0.01	**3.06**	**3.01**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.3**	**90.5**	**92.6**	**98.2**	**100**
13C8-PFOA	----	0.02	%		**94.9**	**95.0**	**98.1**	**83.7**	**103**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW038_230612	0967_SW060_230612	0967_QC120_230612	0967_SW058_230612	0967_QC301_230612
				Sampling date / time	12-Jun-2023 10:38	12-Jun-2023 11:26	12-Jun-2023 11:27	12-Jun-2023 11:27	12-Jun-2023 11:55
Compound	CAS Number	LOR	Unit		EP2307718-006	EP2307718-007	EP2307718-008	EP2307718-009	EP2307718-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**64**	**103**	**104**	**104**	----
Total Alkalinity as CaCO3	----	1	mg/L		**64**	**103**	**104**	**104**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**28**	**37**	**37**	**38**	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**80**	**115**	**117**	**111**	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**17**	**53**	**53**	**54**	----
Magnesium	7439-95-4	1	mg/L		**6**	**13**	**13**	**13**	----
Sodium	7440-23-5	1	mg/L		**63**	**70**	**69**	**67**	----
Potassium	7440-09-7	1	mg/L		**9**	**13**	**13**	**13**	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**4.12**	**6.07**	**6.15**	**6.00**	----
ø **Total Cations**	----	0.01	meq/L		**4.31**	**7.09**	**7.05**	**7.01**	----
ø **Ionic Balance**	----	0.01	%		**2.30**	**7.74**	**6.82**	**7.77**	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.11**	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.11**	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.79**	**0.01**	**0.01**	**0.01**	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**1.82**	**0.02**	**0.01**	**0.01**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.07**	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.28**	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW038_230612	0967_SW060_230612	0967_QC120_230612	0967_SW058_230612	0967_QC301_230612
				Sampling date / time	12-Jun-2023 10:38	12-Jun-2023 11:26	12-Jun-2023 11:27	12-Jun-2023 11:27	12-Jun-2023 11:55
Compound	CAS Number	LOR	Unit		EP2307718-006	EP2307718-007	EP2307718-008	EP2307718-009	EP2307718-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.07**	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW038_230612	0967_SW060_230612	0967_QC120_230612	0967_SW058_230612	0967_QC301_230612
				Sampling date / time	12-Jun-2023 10:38	12-Jun-2023 11:26	12-Jun-2023 11:27	12-Jun-2023 11:27	12-Jun-2023 11:55
Compound	CAS Number	LOR	Unit		EP2307718-006	EP2307718-007	EP2307718-008	EP2307718-009	EP2307718-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.30**	**0.03**	**0.02**	**0.02**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**2.61**	**0.03**	**0.02**	**0.02**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.17**	**0.03**	**0.02**	**0.02**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**100**	**92.1**	**93.8**	**88.9**	**106**
13C8-PFOA	----	0.02	%		**104**	**94.5**	**98.8**	**96.2**	**102**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC401_230612	0967_QC302_230612	----	----	----
				Sampling date / time	12-Jun-2023 11:56	12-Jun-2023 11:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2307718-011	EP2307718-012	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC401_230612	0967_QC302_230612	----	----	----
				Sampling date / time	12-Jun-2023 11:56	12-Jun-2023 11:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2307718-011	EP2307718-012	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**113**	----	----	----
13C8-PFOA	----	0.02	%		**107**	**111**	----	----	----

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **SURFACE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307718**	Page	: 1 of 13
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53474	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5120066)									
EP2307715-006	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	119	121	1.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	119	121	1.5	0% - 20%
EP2307718-002	0967_SW048_230612	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	50	49	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	50	49	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111219)									
EP2307675-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	12	12	0.0	0% - 50%
EP2307715-006	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	14	15	0.0	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111223)									
EP2307718-002	0967_SW048_230612	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	106	106	0.0	0% - 20%
EP2307798-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	20	20	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111221)									
EP2307675-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	28	26	6.3	0% - 20%
EP2307715-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	28	28	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111224)									
EP2307718-002	0967_SW048_230612	ED045G: Chloride	16887-00-6	1	mg/L	515	515	0.0	0% - 20%
EP2307798-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	44	43	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5111762)									
EP2307715-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	42	39	5.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	14	13	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 5111762) - continued									
EP2307715-001	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	235	233	0.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	19	19	0.0	0% - 50%
EP2307715-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	11	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	24	25	4.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5111763)									
EP2307718-007	0967_SW060_230612	ED093F: Calcium	7440-70-2	1	mg/L	53	54	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	13	13	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	70	69	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	13	13	0.0	0% - 50%
EP2307798-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	20	21	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	61	62	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	11	0.0	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.18	0.18	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.20	0.18	9.1	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.51	0.56	8.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.22	1.27	4.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.07	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	2.38	2.16	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.50	5.69	3.3	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.32	0.32	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125798) - continued									
EP2307798-009	Anonymous	EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.36	0.34	5.0	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.11	0.10	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.11	0.12	10.4	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.17	0.17	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125798) - continued									
EP2307798-009	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.22	0.21	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.72	0.67	6.1	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.07	0.06	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.2	0.2	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125798) - continued									
EP2307798-003	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2307798-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125778) - continued									
EP2307798-010	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2307798-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125772)									
EP2307715-014	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.46	0.44	4.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.38	0.36	5.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.44	0.42	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5125798)									
EP2307798-003	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.07	2.19	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.73	1.83	5.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.97	2.08	5.4	0% - 20%
EP2307798-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	10.0	9.92	1.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	7.88	7.85	0.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	9.58	9.48	1.0	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5120066)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	107	87.8	118
				<1	200 mg/L	92.2	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	99.7	89.9	112
				<1	500 mg/L	98.2	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111223)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.8	89.9	112
				<1	500 mg/L	98.3	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	104	88.6	113
				<1	1000 mg/L	93.9	88.6	113
ED045G: Chloride by Discrete Analyser (QCLot: 5111224)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.3	88.6	113
				<1	1000 mg/L	92.8	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5111762)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	110	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.9	84.6	108
ED093F: Dissolved Major Cations (QCLot: 5111763)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	100.0	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.4	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.0	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125772)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	106	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	101	71.0	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125772) - continued								
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	113	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	106	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125778)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	110	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	104	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	111	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	106	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	83.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125772)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	105	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	106	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	111	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	101	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125778)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125778) - continued								
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	115	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	113	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	85.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	99.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125772)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	122	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	99.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	106	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	106	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	114	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125778)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125778) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.9	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	113	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	108	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	111	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	103	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125772)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	109	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	108	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	114	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	100	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125778)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	115	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	115	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	123	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	110	64.2	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5125772)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125778)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125798)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111219)							
EP2307675-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	110	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111223)							
EP2307718-002	0967_SW048_230612	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	129	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111221)							
EP2307675-010	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	95.5	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111224)							
EP2307718-002	0967_SW048_230612	ED045G: Chloride	16887-00-6	1000 mg/L	82.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	116	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	123	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.4	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	98.4	65.0	140

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798) - continued							
EP2307798-008	Anonymous	EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	119	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	109	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	96.1	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	99.1	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	96.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	103	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	106	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	101	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	112	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	101	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	96.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	113	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	114	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	110	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	108	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307718**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SW - ah	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 13
Order number	: pfas-omp Pearce	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	4				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	45	8.89	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	45	2.22	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW049_230612, 0967_SW048_230612, 0967_SW066_230612, 0967_SW036_230612, 0967_QC118_230612, 0967_SW038_230612, 0967_SW060_230612, 0967_QC120_230612, 0967_SW058_230612	**12-Jun-2023**	**----**	----	----	**20-Jun-2023**	26-Jun-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW049_230612, 0967_SW048_230612, 0967_SW066_230612, 0967_SW036_230612, 0967_QC118_230612, 0967_SW038_230612, 0967_SW060_230612, 0967_QC120_230612, 0967_SW058_230612	**12-Jun-2023**	**----**	----	----	**23-Jun-2023**	10-Jul-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW049_230612, 0967_SW048_230612, 0967_SW066_230612, 0967_SW036_230612, 0967_QC118_230612, 0967_SW038_230612, 0967_SW060_230612, 0967_QC120_230612, 0967_SW058_230612	**12-Jun-2023**	**----**	----	----	**23-Jun-2023**	10-Jul-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**----**	----	**----**	**19-Jun-2023**	19-Jun-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612								
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612,	0967_QC301_230612,							
0967_QC401_230612,	0967_QC302_230612,							
0967_QC402_230612								
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612,	0967_QC301_230612,							
0967_QC401_230612,	0967_QC302_230612,							
0967_QC402_230612								
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612,	0967_QC301_230612,							
0967_QC401_230612,	0967_QC302_230612,							
0967_QC402_230612								

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612,	0967_QC301_230612,							
0967_QC401_230612,	0967_QC302_230612,							
0967_QC402_230612								
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW049_230612,	0967_SW048_230612,	**12-Jun-2023**	**21-Jun-2023**	09-Dec-2023	✓	**23-Jun-2023**	09-Dec-2023	✓
0967_SW066_230612,	0967_SW036_230612,							
0967_QC118_230612,	0967_SW038_230612,							
0967_SW060_230612,	0967_QC120_230612,							
0967_SW058_230612,	0967_QC301_230612,							
0967_QC401_230612,	0967_QC302_230612,							
0967_QC402_230612								

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	35	**11.43**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	45	**8.89**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	45	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	45	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	45	**2.22**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EP2307718**		
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53474	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:15	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.5 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307718-001	12-Jun-2023 08:30	0967_SW049_230612	✓	✓
EP2307718-002	12-Jun-2023 10:10	0967_SW048_230612	✓	✓
EP2307718-003	12-Jun-2023 10:10	0967_SW066_230612	✓	✓
EP2307718-004	12-Jun-2023 10:36	0967_SW036_230612	✓	✓
EP2307718-005	12-Jun-2023 10:37	0967_QC118_230612	✓	✓
EP2307718-006	12-Jun-2023 10:38	0967_SW038_230612	✓	✓
EP2307718-007	12-Jun-2023 11:26	0967_SW060_230612	✓	✓
EP2307718-008	12-Jun-2023 11:27	0967_QC120_230612	✓	✓
EP2307718-009	12-Jun-2023 11:27	0967_SW058_230612	✓	✓
EP2307718-010	12-Jun-2023 11:55	0967_QC301_230612	✓	
EP2307718-011	12-Jun-2023 11:56	0967_QC401_230612	✓	
EP2307718-012	12-Jun-2023 11:57	0967_QC302_230612	✓	
EP2307718-013	12-Jun-2023 11:58	0967_QC402_230612	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307718

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0067_PPBOMP_23 **Client:** Stantec **Project Manager** [redacted]

Phone:

ALS Compass COC Reference: 53665, 53666, 53673, 53674 **# Samples:** 1 Bulk **Sampler:**

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by: [redacted]	**Received by:**	**Relinquished by:**	**Received by:**
Date / Time: 12/6/23 ~ 12:00pm.	**Date / Time:** 12/6 1215	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

(ALS) COC#: 53474 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW049		12/06/2023 08:30 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW048		12/06/2023 10:10 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW066		12/06/2023 10:10 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_SW036		12/06/2023 10:36 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_QC118		12/06/2023 10:37 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW038		12/06/2023 10:38 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_SW060		12/06/2023 11:26 AM	WATER	ALS: 3 Non ALS: 0	No		X		
008	0967_QC120		12/06/2023 11:27 AM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_SW058		12/06/2023 11:27 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

COC#: 53474 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_QC301		12/06/2023 11:55 AM	WATER	ALS: 2 Non ALS: 0	No	X			
011	0967_QC104		12/06/2023 11:56 AM	WATER	ALS: 2 Non ALS: 0	No	X			
012	0967_QC302		12/06/2023 11:57 AM	WATER	ALS: 2 Non ALS: 0	No	X			
013	0967_QC402		12/06/2023 11:58 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 53474 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522054842	Green	No	
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822082515	Grey	No	
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822082520	Grey	No	
002	0967_SW048	HDPE (no PTFE)	20 mL	00350822082666	Grey	No	
002	0967_SW048	Clear Plastic Bottle - Natural	125 mL	00070560067423	Green	No	
002	0967_SW048	HDPE (no PTFE)	20 mL	00350822082788	Grey	No	
003	0967_SW066	HDPE (no PTFE)	20 mL	00350822062554	Grey	No	
003	0967_SW066	HDPE (no PTFE)	20 mL	00350822062450	Grey	No	
003	0967_SW066	Clear Plastic Bottle - Natural	125 mL	00070522068369	Green	No	
004	0967_SW036	HDPE (no PTFE)	20 mL	00350822062622	Grey	No	
004	0967_SW036	HDPE (no PTFE)	20 mL	00350822086398	Grey	No	
004	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522068340	Green	No	
005	0967_QC118	HDPE (no PTFE)	20 mL	00350822082561	Grey	No	
005	0967_QC118	HDPE (no PTFE)	20 mL	00350822082568	Grey	No	
005	0967_QC118	Clear Plastic Bottle - Natural	125 mL	00070522054731	Green	No	
006	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522054850	Green	No	
006	0967_SW038	HDPE (no PTFE)	20 mL	00350822082348	Grey	No	
006	0967_SW038	HDPE (no PTFE)	20 mL	00350822082468	Grey	No	
007	0967_SW060	Clear Plastic Bottle - Natural	125 mL	00070522054891	Green	No	
007	0967_SW060	HDPE (no PTFE)	20 mL	00350822082495	Grey	No	
007	0967_SW060	HDPE (no PTFE)	20 mL	00350822082316	Grey	No	
008	0967_QC120	Clear Plastic Bottle - Natural	125 mL	00070522054798	Green	No	
008	0967_QC120	HDPE (no PTFE)	20 mL	00350822082572	Grey	No	
008	0967_QC120	HDPE (no PTFE)	20 mL	00350822082546	Grey	No	
009	0967_SW058	HDPE (no PTFE)	20 mL	00350822082540	Grey	No	
009	0967_SW058	HDPE (no PTFE)	20 mL	00350822082314	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 53474 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_SW058	Clear Plastic Bottle - Natural	125 mL	00070522054869	Green	No	
010	0967_QC301	HDPE (no PTFE)	20 mL	00350822082758	Grey	No	
010	0967_QC301	HDPE (no PTFE)	20 mL	00350822062664	Grey	No	
011	0967_QC104	HDPE (no PTFE)	20 mL	00350822082657	Grey	No	
011	0967_QC104	HDPE (no PTFE)	20 mL	00350822062668	Grey	No	
012	0967_QC302	HDPE (no PTFE)	20 mL	00350822082859	Grey	No	
012	0967_QC302	HDPE (no PTFE)	20 mL	00350822062544	Grey	No	
013	0967_QC402	HDPE (no PTFE)	20 mL	00350822082679	Grey	No	
013	0967_QC402	HDPE (no PTFE)	20 mL	00350822062566	Grey	No	

Total Bottle Count: ALS: 35, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307719**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Jun-2023
C-O-C number	: 53475	Issue Date	: 22-Jun-2023 17:14
Sampler	: [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230612	0967_SD062_230612	0967_SD061_230612	0967_SD036_230612	0967_QC117_230612
				Sampling date / time	12-Jun-2023 08:30	12-Jun-2023 09:50	12-Jun-2023 10:40	12-Jun-2023 10:40	12-Jun-2023 10:41
Compound	CAS Number	LOR	Unit		EP2307719-001	EP2307719-002	EP2307719-003	EP2307719-004	EP2307719-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**22.1**	**3.3**	**71.5**	**34.1**	**25.6**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	**0.0006**	**0.0004**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0041**	<0.0002	**0.0003**	**0.0080**	**0.0051**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	**0.0005**	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230612	0967_SD062_230612	0967_SD061_230612	0967_SD036_230612	0967_QC117_230612
				Sampling date / time	12-Jun-2023 08:30	12-Jun-2023 09:50	12-Jun-2023 10:40	12-Jun-2023 10:40	12-Jun-2023 10:41
Compound	CAS Number	LOR	Unit		EP2307719-001	EP2307719-002	EP2307719-003	EP2307719-004	EP2307719-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0044**	**0.0005**	**0.0003**	**0.0088**	**0.0055**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0044**	<0.0002	**0.0003**	**0.0086**	**0.0055**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0044**	**0.0005**	**0.0003**	**0.0086**	**0.0055**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**94.5**	**100**	**99.5**	**104**	**97.0**
13C8-PFOA	----	0.0002	%		**104**	**113**	**105**	**110**	**113**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD060_230612	0967_QC119_230612	0967_SD058_230612	----	----
				Sampling date / time	12-Jun-2023 11:25	12-Jun-2023 11:26	12-Jun-2023 11:28	----	----
Compound	CAS Number	LOR	Unit		EP2307719-006	EP2307719-007	EP2307719-008	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**11.1**	**12.1**	**34.2**	**----**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0009**	**0.0007**	**0.0002**	**----**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	**----**	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	**----**	**----**
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	**----**	**----**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD060_230612	0967_QC119_230612	0967_SD058_230612	----	----
			Sampling date / time	12-Jun-2023 11:25	12-Jun-2023 11:26	12-Jun-2023 11:28	----	----
Compound	CAS Number	LOR	Unit	EP2307719-006	EP2307719-007	EP2307719-008	--------	--------
				Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0009**	**0.0007**	**0.0002**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0009**	**0.0007**	**0.0002**	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0009**	**0.0007**	**0.0002**	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**106**	**100**	**99.0**	----	----
13C8-PFOA	----	0.0002	%	**106**	**108**	**108**	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307719**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Jun-2023
C-O-C number	: 53475	Issue Date	: 22-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5120418)									
EP2307716-001	Anonymous	EA055: Moisture Content	----	0.1	%	21.8	21.9	0.5	0% - 20%
EP2307716-010	Anonymous	EA055: Moisture Content	----	0.1	%	33.3	39.7	17.7	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115465)									
EP2307719-001	0967_SD049_230612	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0041	0.0034	19.7	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307783-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115465)									
EP2307719-001	0967_SD049_230612	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115465) - continued									
EP2307719-001	0967_SD049_230612	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307783-003	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	0.0035	0.0030	15.4	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0054	0.0046	15.6	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	0.0033	0.0027	22.0	0% - 50%
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0023	0.0017	27.6	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	0.002	0.002	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115465)									
EP2307719-001	0967_SD049_230612	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307783-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115465)									
EP2307719-001	0967_SD049_230612	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307783-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115465)									
EP2307719-001	0967_SD049_230612	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0044	0.0036	20.0	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0044	0.0036	20.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0044	0.0036	20.0	0% - 20%
EP2307783-003	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0165	0.0140	16.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0165	0.0140	16.4	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115465)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	111	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	115	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	114	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	96.1	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115465)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	110	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	114	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115465)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	109	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.4	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	101	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	105	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	118	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115465)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115465) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	112	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	117	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	112	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	92.1	54.8	124
EP231P: PFAS Sums (QCLot: 5115465)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115465)							
EP2307719-002	0967_SD062_230612	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	108	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	102	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	109	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	104	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	88.6	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	120	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115465)							
EP2307719-002	0967_SD062_230612	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	97.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	85.2	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	106	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	98.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	114	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	110	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	102	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	117	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	85.9	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	94.3	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	109	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115465)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115465) - continued							
EP2307719-002	0967_SD062_230612	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	113	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	104	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	102	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	102	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	104	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	78.8	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	71.6	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115465)							
EP2307719-002	0967_SD062_230612	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	122	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	99.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	121	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	75.5	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307719**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Jun-2023
Site	: Pearce SD - ah	Issue Date	: 22-Jun-2023
Sampler	: [redacted]	No. of samples received	: 8
Order number	: pfas-omp Pearce	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD049_230612,	0967_SD062_230612,	**12-Jun-2023**	**----**	----	----	**21-Jun-2023**	26-Jun-2023	✓
0967_SD061_230612,	0967_SD036_230612,							
0967_QC117_230612,	0967_SD060_230612,							
0967_QC119_230612,	0967_SD058_230612							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD049_230612,	0967_SD062_230612,	**12-Jun-2023**	**20-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
0967_SD061_230612,	0967_SD036_230612,							
0967_QC117_230612,	0967_SD060_230612,							
0967_QC119_230612,	0967_SD058_230612							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0967_SD049_230612,	0967_SD062_230612,	**12-Jun-2023**	**20-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
0967_SD061_230612,	0967_SD036_230612,							
0967_QC117_230612,	0967_SD060_230612,							
0967_QC119_230612,	0967_SD058_230612							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0967_SD049_230612,	0967_SD062_230612,	**12-Jun-2023**	**20-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
0967_SD061_230612,	0967_SD036_230612,							
0967_QC117_230612,	0967_SD060_230612,							
0967_QC119_230612,	0967_SD058_230612							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD049_230612,	0967_SD062_230612,	**12-Jun-2023**	**20-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
0967_SD061_230612,	0967_SD036_230612,							
0967_QC117_230612,	0967_SD060_230612,							
0967_QC119_230612,	0967_SD058_230612							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD049_230612, 0967_SD062_230612, 0967_SD061_230612, 0967_SD036_230612, 0967_QC117_230612, 0967_SD060_230612, 0967_QC119_230612, 0967_SD058_230612	**12-Jun-2023**	**20-Jun-2023**	09-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307719**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53475	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 12-Jun-2023 12:15	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.5 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307719-001	12-Jun-2023 08:30	0967_SD049_230612	✓	✓
EP2307719-002	12-Jun-2023 09:50	0967_SD062_230612	✓	✓
EP2307719-003	12-Jun-2023 10:40	0967_SD061_230612	✓	✓
EP2307719-004	12-Jun-2023 10:40	0967_SD036_230612	✓	✓
EP2307719-005	12-Jun-2023 10:41	0967_QC117_230612	✓	✓
EP2307719-006	12-Jun-2023 11:25	0967_SD060_230612	✓	✓
EP2307719-007	12-Jun-2023 11:26	0967_QC119_230612	✓	✓
EP2307719-008	12-Jun-2023 11:28	0967_SD058_230612	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]esdat.com.au
- Chain of Custody (CoC) (COC) — Email — [redacted]esdat.com.au
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au
- EDI Format - XTab (XTAB) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307719

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967_PBSOMP_23 **Client:** Stantec **Project Manager** [redacted]

Phone:

ALS Compass COC Reference: ~~5365~~ ~~5366~~ 5373 5374 **# Samples:** 1 Bag

Sampler:

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 12/6/23 ~ 12:00pm.	Date / Time: 12/6 1215	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53475 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD049		12/06/2023 08:30 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD62		12/06/2023 09:50 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD061		12/06/2023 10:40 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD036		12/06/2023 10:40 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_QC117		12/06/2023 10:41 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD060		12/06/2023 11:25 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_QC119		12/06/2023 11:26 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD058		12/06/2023 11:28 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53475 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD049	HDPE Soil Jar	200 mL	00621122035146	Grey	No	
002	0967_SD62	HDPE Soil Jar	200 mL	00621122079225	Grey	No	
003	0967_SD061	HDPE Soil Jar	200 mL	00621122035181	Grey	No	
004	0967_SD036	HDPE Soil Jar	200 mL	00621122079813	Grey	No	
005	0967_QC117	HDPE Soil Jar	200 mL	00621122079848	Grey	No	
006	0967_SD060	HDPE Soil Jar	200 mL	00621122079792	Grey	No	
007	0967_QC119	HDPE Soil Jar	200 mL	00621122079832	Grey	No	
008	0967_SD058	HDPE Soil Jar	200 mL	00621122079781	Grey	No	

Total Bottle Count: ALS: 8, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307798**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023 11:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53539	Issue Date	: 23-Jun-2023 17:27
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 16		
No. of samples analysed	: 16		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230613	0967_SW007_230613	0967_SW018_230613	0967_SW010_230613	0967_SW015_230613
				Sampling date / time	13-Jun-2023 07:27	13-Jun-2023 07:41	13-Jun-2023 07:54	13-Jun-2023 08:02	13-Jun-2023 08:11
Compound	CAS Number	LOR	Unit		EP2307798-001	EP2307798-002	EP2307798-003	EP2307798-004	EP2307798-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		202	120	140	45	40
Total Alkalinity as CaCO3	----	1	mg/L		202	120	140	45	40
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		41	24	20	4	9
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		280	83	44	27	27
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		39	38	38	5	11
Magnesium	7439-95-4	1	mg/L		13	6	6	2	3
Sodium	7440-23-5	1	mg/L		233	68	53	32	24
Potassium	7440-09-7	1	mg/L		18	10	9	9	5
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		12.8	5.24	4.45	1.74	1.75
ø Total Cations	----	0.01	meq/L		13.6	5.60	4.92	2.04	1.97
ø Ionic Balance	----	0.01	%		3.12	3.37	5.02	7.73	5.90
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.02	3.82	0.06	2.65	1.55
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.03	7.00	0.07	3.28	1.88
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.16	65.5	0.51	22.9	11.2
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	6.22	0.03	1.31	0.48
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.58	422	1.22	64.8	16.1
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	1.66	<0.02	0.19	0.06
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	2.2	<0.1	1.9	1.0
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.03	3.39	0.04	1.84	1.10
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	18.0	0.11	7.62	4.49

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230613	0967_SW007_230613	0967_SW018_230613	0967_SW010_230613	0967_SW015_230613
				Sampling date / time	13-Jun-2023 07:27	13-Jun-2023 07:41	13-Jun-2023 07:54	13-Jun-2023 08:02	13-Jun-2023 08:11
Compound	CAS Number	LOR	Unit		EP2307798-001	EP2307798-002	EP2307798-003	EP2307798-004	EP2307798-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.05**	**1.50**	<0.02	**0.62**	**0.38**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.04**	**3.56**	**0.03**	**1.48**	**0.77**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.09**	<0.02	**0.06**	**0.02**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	**0.05**	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	**0.04**	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	**0.04**	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	**1.58**	<0.02	**0.07**	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.41**	<0.05	**0.07**	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	**0.28**	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW002_230613	0967_SW007_230613	0967_SW018_230613	0967_SW010_230613	0967_SW015_230613
				Sampling date / time	13-Jun-2023 07:27	13-Jun-2023 07:41	13-Jun-2023 07:54	13-Jun-2023 08:02	13-Jun-2023 08:11
Compound	CAS Number	LOR	Unit		EP2307798-001	EP2307798-002	EP2307798-003	EP2307798-004	EP2307798-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.99**	**537**	**2.07**	**109**	**39.0**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.74**	**488**	**1.73**	**87.7**	**27.3**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.96**	**521**	**1.97**	**104**	**36.6**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.4**	**75.4**	**108**	**88.9**	**90.9**
13C8-PFOA	----	0.02	%		**96.9**	**94.5**	**109**	**92.1**	**94.0**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230613	0967_QC121_230613	0967_SW032_230613	0967_SW034_230613	0967_SW028_230613
				Sampling date / time	13-Jun-2023 08:20	13-Jun-2023 08:23	13-Jun-2023 08:38	13-Jun-2023 08:56	13-Jun-2023 09:13
Compound	CAS Number	LOR	Unit		EP2307798-006	EP2307798-007	EP2307798-008	EP2307798-009	EP2307798-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		130	131	101	84	14
Total Alkalinity as CaCO3	----	1	mg/L		130	131	101	84	14
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		17	17	25	14	106
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		35	35	56	27	612
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		36	35	20	26	48
Magnesium	7439-95-4	1	mg/L		6	6	6	5	66
Sodium	7440-23-5	1	mg/L		44	44	61	29	330
Potassium	7440-09-7	1	mg/L		10	9	11	5	12
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		3.94	3.96	4.12	2.73	19.8
ø Total Cations	----	0.01	meq/L		4.46	4.38	4.43	3.10	22.5
ø Ionic Balance	----	0.01	%		6.20	5.10	3.61	6.29	6.48
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.05	0.05	0.04	0.32	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.06	0.06	0.04	0.36	0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.43	0.41	0.30	2.38	0.18
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		0.02	0.02	<0.02	0.11	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.91	0.89	0.64	5.50	0.20
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	0.2	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		0.02	0.02	0.02	0.22	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.08	0.08	0.06	0.72	0.03

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230613	0967_QC121_230613	0967_SW032_230613	0967_SW034_230613	0967_SW028_230613
				Sampling date / time	13-Jun-2023 08:20	13-Jun-2023 08:23	13-Jun-2023 08:38	13-Jun-2023 08:56	13-Jun-2023 09:13
Compound	CAS Number	LOR	Unit		EP2307798-006	EP2307798-007	EP2307798-008	EP2307798-009	EP2307798-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.07**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	**0.02**	**0.02**	**0.17**	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW020_230613	0967_QC121_230613	0967_SW032_230613	0967_SW034_230613	0967_SW028_230613
				Sampling date / time	13-Jun-2023 08:20	13-Jun-2023 08:23	13-Jun-2023 08:38	13-Jun-2023 08:56	13-Jun-2023 09:13
Compound	CAS Number	LOR	Unit		EP2307798-006	EP2307798-007	EP2307798-008	EP2307798-009	EP2307798-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.59**	**1.55**	**1.12**	**10.0**	**0.46**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.34**	**1.30**	**0.94**	**7.88**	**0.38**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.51**	**1.47**	**1.08**	**9.58**	**0.44**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.5**	**104**	**93.5**	**96.7**	**92.7**
13C8-PFOA	----	0.02	%		**104**	**110**	**104**	**102**	**93.3**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230613	0967_SW022_230613	0967_QC301_230613	0967_QC302_230613	0967_QC401_230613
				Sampling date / time	13-Jun-2023 09:52	13-Jun-2023 10:07	13-Jun-2023 10:49	13-Jun-2023 10:50	13-Jun-2023 10:50
Compound	CAS Number	LOR	Unit		EP2307798-011	EP2307798-012	EP2307798-013	EP2307798-014	EP2307798-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**42**	**92**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**42**	**92**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**12**	**44**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**27**	**220**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**12**	**36**	----	----	----
Magnesium	7439-95-4	1	mg/L		**3**	**22**	----	----	----
Sodium	7440-23-5	1	mg/L		**27**	**138**	----	----	----
Potassium	7440-09-7	1	mg/L		**2**	**7**	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**1.85**	**8.96**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**2.07**	**9.79**	----	----	----
ø **Ionic Balance**	----	0.01	%		**5.63**	**4.42**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.04**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.06**	**0.04**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.79**	**0.29**	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**2.19**	**0.42**	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**0.16**	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.06**	**0.16**	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230613	0967_SW022_230613	0967_QC301_230613	0967_QC302_230613	0967_QC401_230613
				Sampling date / time	13-Jun-2023 09:52	13-Jun-2023 10:07	13-Jun-2023 10:49	13-Jun-2023 10:50	13-Jun-2023 10:50
Compound	CAS Number	LOR	Unit		EP2307798-011	EP2307798-012	EP2307798-013	EP2307798-014	EP2307798-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.04**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.03**	**0.02**	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	**0.20**	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW025_230613	0967_SW022_230613	0967_QC301_230613	0967_QC302_230613	0967_QC401_230613
				Sampling date / time	13-Jun-2023 09:52	13-Jun-2023 10:07	13-Jun-2023 10:49	13-Jun-2023 10:50	13-Jun-2023 10:50
Compound	CAS Number	LOR	Unit		EP2307798-011	EP2307798-012	EP2307798-013	EP2307798-014	EP2307798-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.21**	**1.37**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**2.98**	**0.71**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.11**	**1.33**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**104**	**90.5**	**95.6**	**93.6**	**83.4**
13C8-PFOA	----	0.02	%		**106**	**97.0**	**95.4**	**91.0**	**97.1**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC402_230613	----	----	----	----
				Sampling date / time	13-Jun-2023 10:51	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307798-016	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC402_230613	----	----	----	----
				Sampling date / time	13-Jun-2023 10:51	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2307798-016	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307798**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: 53539	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 16		
No. of samples analysed	: 16		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5121780)									
EP2307798-003	0967_SW018_230613	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	140	139	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	140	139	0.0	0% - 20%
EP2307798-012	0967_SW022_230613	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	92	92	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	92	92	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111223)									
EP2307718-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	106	106	0.0	0% - 20%
EP2307798-003	0967_SW018_230613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	20	20	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111224)									
EP2307718-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	515	515	0.0	0% - 20%
EP2307798-003	0967_SW018_230613	ED045G: Chloride	16887-00-6	1	mg/L	44	43	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5111763)									
EP2307718-007	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	53	54	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	13	13	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	70	69	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	13	13	0.0	0% - 50%
EP2307798-008	0967_SW032_230613	ED093F: Calcium	7440-70-2	1	mg/L	20	21	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	61	62	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	11	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	0967_SW028_230613	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.18	0.18	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.20	0.18	9.1	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	0967_SW018_230613	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.51	0.56	8.9	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.22	1.27	4.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.07	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2307798-009	0967_SW034_230613	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	2.38	2.16	9.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.50	5.69	3.3	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.32	0.32	0.0	0% - 50%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.36	0.34	5.0	0% - 50%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.11	0.10	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125778)									
EP2307798-010	0967_SW028_230613	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125798)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125798) - continued									
EP2307798-003	0967_SW018_230613	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.11	0.12	10.4	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2307798-009	0967_SW034_230613	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.17	0.17	0.0	0% - 50%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.22	0.21	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.72	0.67	6.1	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.07	0.06	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.2	0.2	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125778)									
EP2307798-010	0967_SW028_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125778) - continued									
EP2307798-010	0967_SW028_230613	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125798)									
EP2307798-003	0967_SW018_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2307798-009	0967_SW034_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125803) - continued									
EP2308022-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	0967_SW028_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125798)									
EP2307798-003	0967_SW018_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2307798-009	0967_SW034_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125803) - continued									
EP2308022-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125778)									
EP2307798-010	0967_SW028_230613	EP231X: Sum of PFAS	----	0.01	µg/L	0.46	0.44	4.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.38	0.36	5.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.44	0.42	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5125798)									
EP2307798-003	0967_SW018_230613	EP231X: Sum of PFAS	----	0.01	µg/L	2.07	2.19	5.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.73	1.83	5.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	1.97	2.08	5.4	0% - 20%
EP2307798-009	0967_SW034_230613	EP231X: Sum of PFAS	----	0.01	µg/L	10.0	9.92	1.3	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	7.88	7.85	0.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	9.58	9.48	1.0	0% - 20%
EP231P: PFAS Sums (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5121780)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	92.1	87.8	118
				<1	200 mg/L	100	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111223)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.8	89.9	112
				<1	500 mg/L	98.3	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5111224)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.3	88.6	113
				<1	1000 mg/L	92.8	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5111763)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	100.0	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.4	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.0	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125778)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	110	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	104	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	111	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	106	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	107	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	83.0	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125803)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	113	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	98.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125778)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	115	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	113	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	85.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	99.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125803)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	109	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125803) - continued								
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	103	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	112	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	97.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	116	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125778)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.9	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	113	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	110	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	99.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	108	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	111	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	103	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	107	60.5	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	111	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	118	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	102	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125778)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	115	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	115	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	114	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	123	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	110	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125803)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	121	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	121	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	91.7	64.2	133
EP231P: PFAS Sums (QCLot: 5125778)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125798)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125803)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5125803) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111223)							
EP2307718-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	129	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111224)							
EP2307718-002	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	82.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	0967_SW032_230613	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	116	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	123	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.4	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	98.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	106	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	126	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	101	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	103	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	108	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	105	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798)							
EP2307798-008	0967_SW032_230613	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	119	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	109	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	96.1	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	99.1	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	104	71.0	134

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125798) - continued							
EP2307798-008	0967_SW032_230613	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	96.0	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	103	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	106	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	101	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	112	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	112	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	106	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	104	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	106	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	96.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	108	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	98.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.2	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	103	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	100	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125798)							
EP2307798-008	0967_SW032_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	112	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	101	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	96.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	101	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	117	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	108	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	109	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	119	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803) - continued							
EP2308022-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	103	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	104	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125798)							
EP2307798-008	0967_SW032_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	113	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	114	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	110	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	108	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	114	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	116	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	120	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	96.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307798**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Site	: Pearce SW - JS	Issue Date	: 23-Jun-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 16
Order number	: pfas-omp Pearce	No. of samples analysed	: 16

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	4				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	43	9.30	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	43	4.65	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW002_230613, 0967_SW007_230613, 0967_SW018_230613, 0967_SW010_230613, 0967_SW015_230613, 0967_SW020_230613, 0967_QC121_230613, 0967_SW032_230613, 0967_SW034_230613, 0967_SW028_230613, 0967_SW025_230613, 0967_SW022_230613	**13-Jun-2023**	**----**	----	**----**	**20-Jun-2023**	27-Jun-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW002_230613, 0967_SW007_230613, 0967_SW018_230613, 0967_SW010_230613, 0967_SW015_230613, 0967_SW020_230613, 0967_QC121_230613, 0967_SW032_230613, 0967_SW034_230613, 0967_SW028_230613, 0967_SW025_230613, 0967_SW022_230613	**13-Jun-2023**	**----**	----	**----**	**23-Jun-2023**	11-Jul-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**----**	----	----	**23-Jun-2023**	11-Jul-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613							
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**----**	----	----	**19-Jun-2023**	20-Jun-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613,							
0967_QC301_230613,	0967_QC302_230613,							
0967_QC401_230613,	0967_QC402_230613							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613,							
0967_QC301_230613,	0967_QC302_230613,							
0967_QC401_230613,	0967_QC402_230613							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613,							
0967_QC301_230613,	0967_QC302_230613,							
0967_QC401_230613,	0967_QC402_230613							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613,							
0967_QC301_230613,	0967_QC302_230613,							
0967_QC401_230613,	0967_QC402_230613							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW002_230613,	0967_SW007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW018_230613,	0967_SW010_230613,							
0967_SW015_230613,	0967_SW020_230613,							
0967_QC121_230613,	0967_SW032_230613,							
0967_SW034_230613,	0967_SW028_230613,							
0967_SW025_230613,	0967_SW022_230613,							
0967_QC301_230613,	0967_QC302_230613,							
0967_QC401_230613,	0967_QC402_230613							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	43	**9.30**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	43	**6.98**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	43	**4.65**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307798**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53539	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 13-Jun-2023 11:00	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 9.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 16 / 16

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307798-001	13-Jun-2023 07:27	0967_SW002_230613	✓	✓
EP2307798-002	13-Jun-2023 07:41	0967_SW007_230613	✓	✓
EP2307798-003	13-Jun-2023 07:54	0967_SW018_230613	✓	✓
EP2307798-004	13-Jun-2023 08:02	0967_SW010_230613	✓	✓
EP2307798-005	13-Jun-2023 08:11	0967_SW015_230613	✓	✓
EP2307798-006	13-Jun-2023 08:20	0967_SW020_230613	✓	✓
EP2307798-007	13-Jun-2023 08:23	0967_QC121_230613	✓	✓
EP2307798-008	13-Jun-2023 08:38	0967_SW032_230613	✓	✓
EP2307798-009	13-Jun-2023 08:56	0967_SW034_230613	✓	✓
EP2307798-010	13-Jun-2023 09:13	0967_SW028_230613	✓	✓
EP2307798-011	13-Jun-2023 09:52	0967_SW025_230613	✓	✓
EP2307798-012	13-Jun-2023 10:07	0967_SW022_230613	✓	✓
EP2307798-013	13-Jun-2023 10:49	0967_QC301_230613	✓	
EP2307798-014	13-Jun-2023 10:50	0967_QC302_230613	✓	
EP2307798-015	13-Jun-2023 10:50	0967_QC401_230613	✓	
EP2307798-016	13-Jun-2023 10:51	0967_QC402_230613	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307798

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 53539, 53540, 53553, 53550 **# Samples:** 1 Esky **Sampler:**

Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	[redacted]		
Date / Time: 13/6/23 ~ 11:00am.	Date / Time: 13/6 11am	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53539 ALS Laboratory: EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW002		13/06/2023 07:27 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW007		13/06/2023 07:41 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW018		13/06/2023 07:54 AM	WATER	ALS: 5 Non ALS: 0	No		X		
004	0967_SW010		13/06/2023 08:02 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_SW015		13/06/2023 08:11 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW020		13/06/2023 08:20 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_QC121		13/06/2023 08:23 AM	WATER	ALS: 3 Non ALS: 0	No		X		
008	0967_SW032		13/06/2023 08:38 AM	WATER	ALS: 5 Non ALS: 0	No		X		
009	0967_SW034		13/06/2023 08:56 AM	WATER	ALS: 5 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 53539 ALS Laboratory: EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW028		13/06/2023 09:13 AM	WATER	ALS: 5 Non ALS: 0	No		X		
011	0967_SW025		13/06/2023 09:52 AM	WATER	ALS: 3 Non ALS: 0	No		X		
012	0967_SW022		13/06/2023 10:07 AM	WATER	ALS: 3 Non ALS: 0	No		X		
013	0967_QC301		13/06/2023 10:49 AM	WATER	ALS: 2 Non ALS: 0	No	X			
014	0967_QC302		13/06/2023 10:50 AM	WATER	ALS: 2 Non ALS: 0	No	X			
015	0967_QC401		13/06/2023 10:50 AM	WATER	ALS: 2 Non ALS: 0	No	X			
016	0967_QC402		13/06/2023 10:51 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 53539 ALS Laboratory: EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted] / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW002	Clear Plastic Bottle - Natural	125 mL	00070522067285	Green	No	
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822082627	Grey	No	
001	0967_SW002	HDPE (no PTFE)	20 mL	00350822082713	Grey	No	
002	0967_SW007	Clear Plastic Bottle - Natural	125 mL	00070522067154	Green	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822062647	Grey	No	
002	0967_SW007	HDPE (no PTFE)	20 mL	00350822062574	Grey	No	
003	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522067101	Green	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062549	Grey	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822086384	Grey	No	
003	0967_SW018	HDPE (no PTFE)	20 mL	00350822062460	Grey	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062443	Grey	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822062468	Grey	No	
004	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522067125	Green	No	
005	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522067203	Green	No	
005	0967_SW015	HDPE (no PTFE)	20 mL	00350822086379	Grey	No	
005	0967_SW015	HDPE (no PTFE)	20 mL	00350822062543	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062550	Grey	No	
006	0967_SW020	HDPE (no PTFE)	20 mL	00350822062636	Grey	No	
006	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070522068405	Green	No	
007	0967_QC121	Clear Plastic Bottle - Natural	125 mL	00070522067147	Green	No	
007	0967_QC121	HDPE (no PTFE)	20 mL	00350822062649	Grey	No	
007	0967_QC121	HDPE (no PTFE)	20 mL	00350822062484	Grey	No	
008	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522068250	Green	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822082885	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822082865	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 53539 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted]

/ ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062630	Grey	No	
008	0967_SW032	HDPE (no PTFE)	20 mL	00350822062427	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062639	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822062594	Grey	No	
009	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522067252	Green	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822082447	Grey	No	
009	0967_SW034	HDPE (no PTFE)	20 mL	00350822082427	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062441	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062670	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062545	Grey	No	
010	0967_SW028	HDPE (no PTFE)	20 mL	00350822062417	Grey	No	
010	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522067205	Green	No	
011	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522068289	Green	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062475	Grey	No	
011	0967_SW025	HDPE (no PTFE)	20 mL	00350822062451	Grey	No	
012	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522068304	Green	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062584	Grey	No	
012	0967_SW022	HDPE (no PTFE)	20 mL	00350822062470	Grey	No	
013	0967_QC301	HDPE (no PTFE)	20 mL	00350822062520	Grey	No	
013	0967_QC301	HDPE (no PTFE)	20 mL	00350822062503	Grey	No	
014	0967_QC302	HDPE (no PTFE)	20 mL	00350822062509	Grey	No	
014	0967_QC302	HDPE (no PTFE)	20 mL	00350822062556	Grey	No	
015	0967_QC401	HDPE (no PTFE)	20 mL	00350822062418	Grey	No	
015	0967_QC401	HDPE (no PTFE)	20 mL	00350822062625	Grey	No	
016	0967_QC402	HDPE (no PTFE)	20 mL	00350822062653	Grey	No	
016	0967_QC402	HDPE (no PTFE)	20 mL	00350822062612	Grey	No	

Total Bottle Count: ALS: 52, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307799**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023 11:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Jun-2023
C-O-C number	: 53540	Issue Date	: 23-Jun-2023 17:27
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: Poor duplicate precision for sample EP2307799-004 due to possible sample heterogeneity. Confirmed by visual inspection.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230613	0967_SD007_230613	0967_SD015_230613	0967_SD020_230613	0967_SD032_230613
				Sampling date / time	13-Jun-2023 07:27	13-Jun-2023 07:40	13-Jun-2023 08:12	13-Jun-2023 08:20	13-Jun-2023 08:37
Compound	CAS Number	LOR	Unit		EP2307799-001	EP2307799-002	EP2307799-003	EP2307799-004	EP2307799-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**23.1**	**46.8**	**24.5**	**19.9**	**33.5**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	**0.0064**	**0.0005**	<0.0002	**0.0002**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	**0.0086**	**0.0006**	<0.0002	**0.0003**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0002**	**0.128**	**0.0085**	**0.0009**	**0.0052**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0306**	**0.0008**	<0.0002	**0.0006**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0050**	**5.28**	**0.114**	**0.0066**	**0.0454**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	**0.160**	**0.0057**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	**0.003**	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	**0.0040**	**0.0005**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0193**	**0.0014**	**0.0003**	**0.0005**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	**0.0026**	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	**0.0133**	**0.0009**	<0.0002	**0.0005**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	**0.0009**	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	**0.0020**	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		**0.0003**	**0.0043**	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		**0.0004**	**0.0141**	**0.0002**	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	**0.0058**	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	**0.0044**	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	**0.194**	**0.0024**	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	**0.0033**	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230613	0967_SD007_230613	0967_SD015_230613	0967_SD020_230613	0967_SD032_230613
				Sampling date / time	13-Jun-2023 07:27	13-Jun-2023 07:40	13-Jun-2023 08:12	13-Jun-2023 08:20	13-Jun-2023 08:37
Compound	CAS Number	LOR	Unit		EP2307799-001	EP2307799-002	EP2307799-003	EP2307799-004	EP2307799-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	**0.0009**	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	**0.0021**	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		**0.0016**	**0.0083**	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	**0.0006**	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0075**	**5.90**	**0.136**	**0.0078**	**0.0527**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0052**	**5.41**	**0.122**	**0.0075**	**0.0506**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0068**	**5.47**	**0.126**	**0.0078**	**0.0518**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**94.5**	**93.0**	**94.5**	**93.0**	**91.0**
13C8-PFOA	----	0.0002	%		**101**	**102**	**95.0**	**101**	**100**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD034_230613	0967_SD028_230613	0967_SD025_230613	0967_QC122_230613	0967_SD022_230613
				Sampling date / time	13-Jun-2023 08:56	13-Jun-2023 09:14	13-Jun-2023 09:50	13-Jun-2023 09:51	13-Jun-2023 10:07
Compound	CAS Number	LOR	Unit		EP2307799-006	EP2307799-007	EP2307799-008	EP2307799-009	EP2307799-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**3.9**	**21.4**	**57.4**	**38.3**	**22.6**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0003**	**0.0004**	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0008**	**0.0056**	**0.0096**	**0.0004**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	**0.0007**	**0.0010**	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0044**	**0.0022**	**0.147**	**0.0541**	**0.0024**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		**0.0012**	<0.0002	**0.0005**	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	**0.0004**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0010**	**0.0006**	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	**0.0005**	**0.0003**	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD034_230613	0967_SD028_230613	0967_SD025_230613	0967_QC122_230613	0967_SD022_230613
				Sampling date / time	13-Jun-2023 08:56	13-Jun-2023 09:14	13-Jun-2023 09:50	13-Jun-2023 09:51	13-Jun-2023 10:07
Compound	CAS Number	LOR	Unit		EP2307799-006	EP2307799-007	EP2307799-008	EP2307799-009	EP2307799-010
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0056**	**0.0030**	**0.156**	**0.0662**	**0.0028**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0044**	**0.0030**	**0.153**	**0.0637**	**0.0028**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0044**	**0.0030**	**0.154**	**0.0648**	**0.0028**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**92.5**	**91.0**	**92.0**	**87.5**	**94.0**
13C8-PFOA	----	0.0002	%		**99.5**	**98.0**	**92.5**	**94.5**	**99.5**

Surrogate Control Limits

Sub-Matrix: SEDIMENT		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307799**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Jun-2023
C-O-C number	: 53540	Issue Date	: 23-Jun-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5120430)									
EP2307783-001	Anonymous	EA055: Moisture Content	----	0.1	%	8.9	8.5	4.0	0% - 20%
EP2307784-006	Anonymous	EA055: Moisture Content	----	0.1	%	6.1	6.2	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115453)									
EP2307780-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0013	0.0016	17.3	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	0.0005	0.0005	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0267	0.0310	14.7	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307799-004	0967_SD020_230613	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0009	0.0011	16.4	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0066	# 0.0086	26.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115453)									
EP2307780-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0005	0.0006	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115453) - continued									
EP2307780-001	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307799-004	0967_SD020_230613	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115453)									
EP2307780-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307799-004	0967_SD020_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115453)									
EP2307780-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307799-004	0967_SD020_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115453)									
EP2307780-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0293	0.0341	15.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0280	0.0326	15.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0288	0.0336	15.4	0% - 20%
EP2307799-004	0967_SD020_230613	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0078	# 0.0100	24.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0075	# 0.0097	25.6	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0078	# 0.0100	24.7	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115453)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	104	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	98.7	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	108	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	97.4	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	100	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115453)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	100	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.4	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	108	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115453)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	104	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.5	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	105	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	105	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	103	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115453)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115453) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	108	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	102	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	102	54.8	124
EP231P: PFAS Sums (QCLot: 5115453)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115453)							
EP2307780-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	106	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	101	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	92.4	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	114	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	104	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115453)							
EP2307780-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	105	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	101	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	107	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	100	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	111	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	103	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	108	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	115	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	111	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	116	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	106	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115453)							
EP2307780-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	97.2	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	112	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	92.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	110	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	109	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	107	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	112	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115453)							
EP2307780-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	112	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	115	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	120	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	109	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307799**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Site	: Pearce SD - JS	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: pfas-omp Pearce	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307799--004	0967_SD020_230613	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	26.1 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EP2307799--004	0967_SD020_230613	**Sum of PFAS**	----	24.7 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EP2307799--004	0967_SD020_230613	**Sum of PFHxS and PFOS**	355-46-4/1763-23-1	25.6 %	0% - 20%	**RPD exceeds LOR based limits**
EP231P: PFAS Sums	EP2307799--004	0967_SD020_230613	**Sum of PFAS (WA DER List)**	----	24.7 %	0% - 20%	**RPD exceeds LOR based limits**
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307780--003	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**----**	----	**----**	**21-Jun-2023**	27-Jun-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	31-Jul-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	31-Jul-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	31-Jul-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	31-Jul-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
0967_SD002_230613,	0967_SD007_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	31-Jul-2023	✓
0967_SD015_230613,	0967_SD020_230613,							
0967_SD032_230613,	0967_SD034_230613,							
0967_SD028_230613,	0967_SD025_230613,							
0967_QC122_230613,	0967_SD022_230613							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307799**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53540	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 13-Jun-2023 11:00	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 9.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307799-001	13-Jun-2023 07:27	0967_SD002_230613	✓	✓
EP2307799-002	13-Jun-2023 07:40	0967_SD007_230613	✓	✓
EP2307799-003	13-Jun-2023 08:12	0967_SD015_230613	✓	✓
EP2307799-004	13-Jun-2023 08:20	0967_SD020_230613	✓	✓
EP2307799-005	13-Jun-2023 08:37	0967_SD032_230613	✓	✓
EP2307799-006	13-Jun-2023 08:56	0967_SD034_230613	✓	✓
EP2307799-007	13-Jun-2023 09:14	0967_SD028_230613	✓	✓
EP2307799-008	13-Jun-2023 09:50	0967_SD025_230613	✓	✓
EP2307799-009	13-Jun-2023 09:51	0967_QC122_230613	✓	✓
EP2307799-010	13-Jun-2023 10:07	0967_SD022_230613	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Perth
Work Order Reference
EP2307799

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 Client: Stantec Project Manager: [redacted]

Phone:

ALS Compass COC Reference: 53539, 53540, 53553, 53550 # Samples: 1 Eski Sampler: [redacted]

Phone: ( )

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 13/6/23 ~ 11:00am.	Date / Time: 13/6 11am	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 53540 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD002		13/06/2023 07:27 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD007		13/06/2023 07:40 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD015		13/06/2023 08:12 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD020		13/06/2023 08:20 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD032		13/06/2023 08:37 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD034		13/06/2023 08:56 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD028		13/06/2023 09:14 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD025		13/06/2023 09:50 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_QC122		13/06/2023 09:51 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

Tuesday, June 13, 2023 2:52:58 AM

CHAIN OF CUSTODY

COC#: 53540 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SD022		13/06/2023 10:07 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: **53540** *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: [redacted] SAMPLER MOBILE [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD002	HDPE Soil Jar	200 mL	00621122079782	Grey	No	
002	0967_SD007	HDPE Soil Jar	200 mL	00621122035088	Grey	No	
003	0967_SD015	HDPE Soil Jar	200 mL	00621122035137	Grey	No	
004	0967_SD020	HDPE Soil Jar	200 mL	00621122035207	Grey	No	
005	0967_SD032	HDPE Soil Jar	200 mL	00621122079825	Grey	No	
006	0967_SD034	HDPE Soil Jar	200 mL	00621122079245	Grey	No	
007	0967_SD028	HDPE Soil Jar	200 mL	00621122079213	Grey	No	
008	0967_SD025	HDPE Soil Jar	200 mL	00621122079855	Grey	No	
009	0967_QC122	HDPE Soil Jar	200 mL	00621122079799	Grey	No	
010	0967_SD022	HDPE Soil Jar	200 mL	00621122079821	Grey	No	

Total Bottle Count: ALS: 10, Non ALS: 0

2:52:58 AM

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307805**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023 11:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Jun-2023
C-O-C number	: 53550	Issue Date	: 23-Jun-2023 17:47
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 9		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: Sample EP2307805-002 shows poor surrogate recovery due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Sample ID	0967_SD049_230613	0967_QC123_230613	0967_SD062_230613	0967_SD061_230613	0967_SD060_230613
				Sampling date / time	13-Jun-2023 08:31	13-Jun-2023 08:35	13-Jun-2023 08:53	13-Jun-2023 08:54	13-Jun-2023 09:33
					EP2307805-001	EP2307805-002	EP2307805-003	EP2307805-004	EP2307805-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**28.9**	**30.3**	**13.3**	**66.4**	**20.4**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0002**	<0.0002	<0.0002	**0.0004**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0032**	**0.0021**	<0.0002	<0.0002	**0.0010**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	**0.0003**	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD049_230613	0967_QC123_230613	0967_SD062_230613	0967_SD061_230613	0967_SD060_230613
				Sampling date / time	13-Jun-2023 08:31	13-Jun-2023 08:35	13-Jun-2023 08:53	13-Jun-2023 08:54	13-Jun-2023 09:33
Compound	CAS Number	LOR	Unit		EP2307805-001	EP2307805-002	EP2307805-003	EP2307805-004	EP2307805-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0032**	**0.0023**	**0.0003**	<0.0002	**0.0016**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0032**	**0.0023**	<0.0002	<0.0002	**0.0014**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0032**	**0.0023**	**0.0003**	<0.0002	**0.0016**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**97.0**	**90.0**	**92.5**	**97.5**	**97.0**
13C8-PFOA	----	0.0002	%		**99.0**	**95.5**	**100**	**108**	**104**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD058_230613	0967_SD055_230613	0967_SD036_230613	0967_QC126_230613	----
				Sampling date / time	13-Jun-2023 09:34	13-Jun-2023 09:57	13-Jun-2023 10:51	13-Jun-2023 10:51	----
Compound	CAS Number	LOR	Unit		EP2307805-006	EP2307805-007	EP2307805-008	EP2307805-009	--------
					Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**23.9**	**54.7**	**25.1**	**26.3**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0002**	**0.0004**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		<0.0002	**0.0005**	**0.0024**	**0.0071**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	**0.001**	<0.001	<0.001	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	**----**
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	**----**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD058_230613	0967_SD055_230613	0967_SD036_230613	0967_QC126_230613	----
			Sampling date / time	13-Jun-2023 09:34	13-Jun-2023 09:57	13-Jun-2023 10:51	13-Jun-2023 10:51	----
Compound	CAS Number	LOR	Unit	EP2307805-006	EP2307805-007	EP2307805-008	EP2307805-009	--------
				Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	----
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	<0.0002	**0.0015**	**0.0026**	**0.0075**	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	**0.0005**	**0.0026**	**0.0075**	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	**0.0015**	**0.0026**	**0.0075**	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**93.5**	**91.5**	**110**	**98.0**	----
13C8-PFOA	----	0.0002	%	**97.5**	**103**	**116**	**100**	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2307805**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Jun-2023
C-O-C number	: 53550	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SD - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 9		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5120434)									
EP2307805-001	0967_SD049_230613	EA055: Moisture Content	----	0.1	%	28.9	30.3	4.7	0% - 20%
EP2307905-005	Anonymous	EA055: Moisture Content	----	0.1	%	24.1	24.5	1.7	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5115475)									
EP2307805-001	0967_SD049_230613	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0032	0.0026	20.0	0% - 50%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2307950-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115475)									
EP2307805-001	0967_SD049_230613	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5115475) - continued									
EP2307805-001	0967_SD049_230613	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2307950-002	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5115475)									
EP2307805-001	0967_SD049_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307950-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5115475)									
EP2307805-001	0967_SD049_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2307950-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5115475)									
EP2307805-001	0967_SD049_230613	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0032	0.0026	20.7	0% - 50%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0032	0.0026	20.7	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0032	0.0026	20.7	0% - 50%
EP2307950-002	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115475)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	103	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	97.4	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	98.3	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	85.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	94.2	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115475)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	101	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	90.0	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115475)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	91.5	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	98.9	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	103	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115475)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115475) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	99.1	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	93.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	103	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	92.1	54.8	124
EP231P: PFAS Sums (QCLot: 5115475)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5115475)							
EP2307805-002	0967_QC123_230613	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	117	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	110	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	109	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	92.9	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	95.9	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	# 33.1	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5115475)							
EP2307805-002	0967_QC123_230613	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	110	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	101	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	107	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	114	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	110	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	105	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	106	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	113	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	116	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	120	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	104	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115475)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5115475) - continued							
EP2307805-002	0967_QC123_230613	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	102	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	122	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	116	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	119	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	112	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	112	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	106	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5115475)							
EP2307805-002	0967_QC123_230613	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	113	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	90.4	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	112	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	78.3	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307805**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Site	: Pearce SD - ah	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 9
Order number	: pfas-omp Pearce	No. of samples analysed	: 9

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2307805--002	0967_QC123_230613	**Perfluorodecane sulfonic acid (PFDS)**	335-77-3	33.1 %	59.0-134%	**Recovery less than lower data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**----**	----	----	**21-Jun-2023**	27-Jun-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**20-Jun-2023**	10-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**20-Jun-2023**	10-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X)							
0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**20-Jun-2023**	10-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**20-Jun-2023**	10-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD049_230613, 0967_QC123_230613, 0967_SD062_230613, 0967_SD061_230613, 0967_SD060_230613, 0967_SD058_230613, 0967_SD055_230613, 0967_SD036_230613, 0967_QC126_230613	**13-Jun-2023**	**20-Jun-2023**	10-Dec-2023	✓	**22-Jun-2023**	30-Jul-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307805**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53550	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 13-Jun-2023 11:00	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 9.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 9 / 9

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2307805-001	13-Jun-2023 08:31	0967_SD049_230613	✓	✓
EP2307805-002	13-Jun-2023 08:35	0967_QC123_230613	✓	✓
EP2307805-003	13-Jun-2023 08:53	0967_SD062_230613	✓	✓
EP2307805-004	13-Jun-2023 08:54	0967_SD061_230613	✓	✓
EP2307805-005	13-Jun-2023 09:33	0967_SD060_230613	✓	✓
EP2307805-006	13-Jun-2023 09:34	0967_SD058_230613	✓	✓
EP2307805-007	13-Jun-2023 09:57	0967_SD055_230613	✓	✓
EP2307805-008	13-Jun-2023 10:51	0967_SD036_230613	✓	✓
EP2307805-009	13-Jun-2023 10:51	0967_QC126_230613	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2307805

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 Client: Stantec Project Manage [redacted]

ALS Compass COC Reference: 53539, 53540 # Samples: 1 Eski Phone:

53553, 53550

Sampler:

Turnaround Requirements: Standard Phone:

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 13/6/23 ~ 11:00am.	Date / Time: 13/6 11am	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53550 ALS Laboratory: EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

EMAIL REPORTS TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS | **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD049		13/06/2023 08:31 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_QC123		13/06/2023 08:35 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD062		13/06/2023 08:53 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD061		13/06/2023 08:54 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD060		13/06/2023 09:33 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD058		13/06/2023 09:34 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD055		13/06/2023 09:57 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
008	0967_SD036		13/06/2023 10:51 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_QC126		13/06/2023 10:51 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 53550 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT P[redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE [redacted]

/ ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD049	HDPE Soil Jar	200 mL	00621122079834	Grey	No	
002	0967_QC123	HDPE Soil Jar	200 mL	00621122035108	Grey	No	
003	0967_SD062	HDPE Soil Jar	200 mL	00621122079225	Grey	No	
004	0967_SD061	HDPE Soil Jar	200 mL	00621122079222	Grey	No	
005	0967_SD060	HDPE Soil Jar	200 mL	00621122079811	Grey	No	
006	0967_SD058	HDPE Soil Jar	200 mL	00621122079845	Grey	No	
007	0967_SD055	HDPE Soil Jar	200 mL	00621122079757	Grey	No	
008	0967_SD036	HDPE Soil Jar	200 mL	00621122035153	Grey	No	
009	0967_QC126	HDPE Soil Jar	200 mL	00621122079856	Grey	No	

Total Bottle Count: ALS: 9, Non ALS: 0

CERTIFICATE OF ANALYSIS

Work Order	: **EP2307806**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023 11:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53553	Issue Date	: 23-Jun-2023 17:46
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230613	0967_QC124_230613	0967_SW048_230613	0967_SW066_230613	0967_SW058_230613
				Sampling date / time	13-Jun-2023 08:37	13-Jun-2023 09:23	13-Jun-2023 08:51	13-Jun-2023 08:52	13-Jun-2023 09:30
Compound	CAS Number	LOR	Unit		EP2307806-001	EP2307806-002	EP2307806-003	EP2307806-004	EP2307806-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**43**	**43**	**46**	**97**	**101**
Total Alkalinity as CaCO3	----	1	mg/L		**43**	**43**	**46**	**97**	**101**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**130**	**130**	**108**	**34**	**44**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**544**	**539**	**511**	**174**	**105**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**41**	**40**	**29**	**29**	**42**
Magnesium	7439-95-4	1	mg/L		**54**	**53**	**52**	**19**	**11**
Sodium	7440-23-5	1	mg/L		**314**	**316**	**299**	**108**	**62**
Potassium	7440-09-7	1	mg/L		**16**	**16**	**15**	**6**	**12**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**18.9**	**18.8**	**17.6**	**7.55**	**5.90**
ø Total Cations	----	0.01	meq/L		**20.6**	**20.5**	**19.1**	**7.86**	**6.00**
ø Ionic Balance	----	0.01	%		**4.17**	**4.43**	**4.18**	**2.00**	**0.92**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.02**	**0.02**	**0.03**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.02**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.14**	**0.15**	**0.21**	<0.01	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.22**	**0.23**	**0.39**	<0.01	**0.01**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.03**	**0.03**	**0.04**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.05**	**0.05**	**0.08**	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230613	0967_QC124_230613	0967_SW048_230613	0967_SW066_230613	0967_SW058_230613
				Sampling date / time	13-Jun-2023 08:37	13-Jun-2023 09:23	13-Jun-2023 08:51	13-Jun-2023 08:52	13-Jun-2023 09:30
Compound	CAS Number	LOR	Unit		EP2307806-001	EP2307806-002	EP2307806-003	EP2307806-004	EP2307806-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.01**	**0.01**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW049_230613	0967_QC124_230613	0967_SW048_230613	0967_SW066_230613	0967_SW058_230613
				Sampling date / time	13-Jun-2023 08:37	13-Jun-2023 09:23	13-Jun-2023 08:51	13-Jun-2023 08:52	13-Jun-2023 09:30
Compound	CAS Number	LOR	Unit		EP2307806-001	EP2307806-002	EP2307806-003	EP2307806-004	EP2307806-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.46**	**0.49**	**0.78**	<0.01	**0.03**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.36**	**0.38**	**0.60**	<0.01	**0.03**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.46**	**0.49**	**0.76**	<0.01	**0.03**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.7**	**92.2**	**90.7**	**94.7**	**91.6**
13C8-PFOA	----	0.02	%		**98.9**	**97.4**	**94.5**	**96.9**	**93.2**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230613	0967_SW055_230613	0967_SW036_230613	0967_QC125_230613	0967_SW038_230613
				Sampling date / time	13-Jun-2023 09:32	13-Jun-2023 09:57	13-Jun-2023 10:47	13-Jun-2023 10:48	13-Jun-2023 10:49
Compound	CAS Number	LOR	Unit		EP2307806-006	EP2307806-007	EP2307806-008	EP2307806-009	EP2307806-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		103	34	68	68	67
Total Alkalinity as CaCO3	----	1	mg/L		103	34	68	68	67
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		43	66	29	29	29
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		106	141	77	77	79
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		43	26	16	16	16
Magnesium	7439-95-4	1	mg/L		12	13	8	8	8
Sodium	7440-23-5	1	mg/L		64	80	58	57	57
Potassium	7440-09-7	1	mg/L		13	22	7	7	7
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		5.94	6.03	4.13	4.13	4.17
ø Total Cations	----	0.01	meq/L		6.25	6.41	4.16	4.12	4.12
ø Ionic Balance	----	0.01	%		2.51	3.04	0.29	0.23	0.67
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	0.13	0.12	0.13
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	0.13	0.16	0.14
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.01	<0.01	1.01	0.93	0.92
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	0.04	0.04	0.04
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.01	<0.01	1.64	1.74	1.70
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	0.08	0.15	0.16
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	0.31	0.28	0.28

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230613	0967_SW055_230613	0967_SW036_230613	0967_QC125_230613	0967_SW038_230613
				Sampling date / time	13-Jun-2023 09:32	13-Jun-2023 09:57	13-Jun-2023 10:47	13-Jun-2023 10:48	13-Jun-2023 10:49
Compound	CAS Number	LOR	Unit		EP2307806-006	EP2307806-007	EP2307806-008	EP2307806-009	EP2307806-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.03**	**0.03**	**0.03**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	**0.06**	**0.07**	**0.06**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW060_230613	0967_SW055_230613	0967_SW036_230613	0967_QC125_230613	0967_SW038_230613
				Sampling date / time	13-Jun-2023 09:32	13-Jun-2023 09:57	13-Jun-2023 10:47	13-Jun-2023 10:48	13-Jun-2023 10:49
Compound	CAS Number	LOR	Unit		EP2307806-006	EP2307806-007	EP2307806-008	EP2307806-009	EP2307806-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	<0.01	**3.43**	**3.52**	**3.46**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	<0.01	**2.65**	**2.67**	**2.62**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	<0.01	**3.26**	**3.32**	**3.28**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.6**	**85.7**	**86.8**	**80.6**	**88.8**
13C8-PFOA	----	0.02	%		**96.3**	**94.7**	**91.2**	**98.4**	**96.9**

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2307806**	Page	: 1 of 10
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 16-Jun-2023
C-O-C number	: 53553	Issue Date	: 23-Jun-2023
Sampler	: [redacted]		
Site	: Pearce SW - ah		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5121780)									
EP2307798-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	140	139	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	140	139	0.0	0% - 20%
EP2307798-012	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	92	92	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	92	92	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5121781)									
EP2307806-009	0967_QC125_230613	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	68	68	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	68	68	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5111225)									
EP2307743-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	37	38	0.0	0% - 20%
EP2307806-006	0967_SW060_230613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	43	43	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5111226)									
EP2307743-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	37	38	2.9	0% - 20%
EP2307806-006	0967_SW060_230613	ED045G: Chloride	16887-00-6	1	mg/L	106	106	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5111766)									
EP2307806-001	0967_SW049_230613	ED093F: Calcium	7440-70-2	1	mg/L	41	40	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	54	54	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	314	319	1.5	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 5111766) - continued									
EP2307806-001	0967_SW049_230613	ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
EP2307825-004	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	36	36	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.18	0.18	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.20	0.18	9.1	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5125803) - continued									
EP2308022-001	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5125778)									
EP2307798-010	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.46	0.44	4.4	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.38	0.36	5.4	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.44	0.42	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5125803)									
EP2308022-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5121780)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	92.1	87.8	118
				<1	200 mg/L	100	87.8	118
ED037P: Alkalinity by PC Titrator (QCLot: 5121781)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	92.2	87.8	118
				<1	200 mg/L	90.4	87.8	118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111225)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	89.9	112
				<1	500 mg/L	102	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5111226)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	100	88.6	113
				<1	1000 mg/L	95.7	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5111766)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.3	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	110	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.0	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.3	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125778)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	110	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	98.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	104	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	94.0	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125803)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	113	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	101	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	104	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	98.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125778)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	104	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	106	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125803)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	109	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	105	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	103	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	112	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.6	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	97.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	116	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125778)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	108	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	91.9	60.5	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)
						LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125778) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	110	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	104	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	102	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	113	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	99.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	107	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	111	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	118	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	102	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125778)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	115	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	115	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125803)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	121	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	121	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	91.7	64.2	133
EP231P: PFAS Sums (QCLot: 5125778)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5125803)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5125803) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5111225)							
EP2307743-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	114	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5111226)							
EP2307743-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	93.2	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	106	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	126	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	101	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	103	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	108	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	105	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	112	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	112	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	106	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	104	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	106	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	96.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	108	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	98.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.2	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	103	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	100	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	101	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	117	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5125803) - continued							
EP2308022-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	108	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	109	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	119	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	103	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	104	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5125803)							
EP2308022-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	114	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	116	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	120	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	96.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2307806**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Jun-2023
Site	: Pearce SW - ah	Issue Date	: 23-Jun-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: pfas-omp Pearce	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	28	7.14	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	28	3.57	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
0967_SW049_230613,	0967_QC124_230613,	**13-Jun-2023**	**----**	----	**----**	**20-Jun-2023**	27-Jun-2023	✓
0967_SW048_230613,	0967_SW066_230613,							
0967_SW058_230613,	0967_SW060_230613,							
0967_SW055_230613,	0967_SW036_230613,							
0967_QC125_230613,	0967_SW038_230613							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
0967_SW049_230613,	0967_QC124_230613,	**13-Jun-2023**	**----**	----	**----**	**23-Jun-2023**	11-Jul-2023	✓
0967_SW048_230613,	0967_SW066_230613,							
0967_SW058_230613,	0967_SW060_230613,							
0967_SW055_230613,	0967_SW036_230613,							
0967_QC125_230613,	0967_SW038_230613							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW049_230613,	0967_QC124_230613,	**13-Jun-2023**	**----**	----	**----**	**23-Jun-2023**	11-Jul-2023	✓
0967_SW048_230613,	0967_SW066_230613,							
0967_SW058_230613,	0967_SW060_230613,							
0967_SW055_230613,	0967_SW036_230613,							
0967_QC125_230613,	0967_SW038_230613							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**----**	----	----	**20-Jun-2023**	20-Jun-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW049_230613, 0967_QC124_230613,	**13-Jun-2023**	**21-Jun-2023**	10-Dec-2023	✓	**23-Jun-2023**	10-Dec-2023	✓
0967_SW048_230613, 0967_SW066_230613,							
0967_SW058_230613, 0967_SW060_230613,							
0967_SW055_230613, 0967_SW036_230613,							
0967_QC125_230613, 0967_SW038_230613							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	22	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	28	**3.57**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2307806**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 53553	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - ah		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 13-Jun-2023 11:00	Issue Date	: 14-Jun-2023
Client Requested Due Date	: 23-Jun-2023	Scheduled Reporting Date	: **23-Jun-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 9.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2307806-001	13-Jun-2023 08:37	0967_SW049_230613	✓	✓
EP2307806-002	13-Jun-2023 09:23	0967_QC124_230613	✓	✓
EP2307806-003	13-Jun-2023 08:51	0967_SW048_230613	✓	✓
EP2307806-004	13-Jun-2023 08:52	0967_SW066_230613	✓	✓
EP2307806-005	13-Jun-2023 09:30	0967_SW058_230613	✓	✓
EP2307806-006	13-Jun-2023 09:32	0967_SW060_230613	✓	✓
EP2307806-007	13-Jun-2023 09:57	0967_SW055_230613	✓	✓
EP2307806-008	13-Jun-2023 10:47	0967_SW036_230613	✓	✓
EP2307806-009	13-Jun-2023 10:48	0967_QC125_230613	✓	✓
EP2307806-010	13-Jun-2023 10:49	0967_SW038_230613	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2307806

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manager:** [redacted]

Phone: (

ALS Compass COC Reference: ~~53539, 53550~~ 53553, 53550 **# Samples:** 1 Esky **Sampler:** [redacted]

Phone: (

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	21		
Date / Time: 13/6/23 ~ 11:00am.	Date / Time: 13/6 11am	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 53553 ALS Laboratory: EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted]

QUOTE NO: ST[redacted]

SAMPLER MOBILE: [redacted]

/ ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW049		13/06/2023 08:37 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_QC124		13/06/2023 09:23 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW048		13/06/2023 08:51 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_SW066		13/06/2023 08:52 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW058		13/06/2023 09:30 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_SW060		13/06/2023 09:32 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_SW055		13/06/2023 09:57 AM	WATER	ALS: 3 Non ALS: 0	No	X		
008	0967_SW036		13/06/2023 10:47 AM	WATER	ALS: 3 Non ALS: 0	No	X		
009	0967_QC125		13/06/2023 10:48 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53553 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
010	0967_SW038		13/06/2023 10:49 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 53553 *ALS Laboratory:* EP Perth

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822082690	Grey	No	
001	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522067416	Green	No	
001	0967_SW049	HDPE (no PTFE)	20 mL	00350822082782	Grey	No	
002	0967_QC124	HDPE (no PTFE)	20 mL	00350822082703	Grey	No	
002	0967_QC124	HDPE (no PTFE)	20 mL	00350822082650	Grey	No	
002	0967_QC124	Clear Plastic Bottle - Natural	125 mL	00070522067394	Green	No	
003	0967_SW048	Clear Plastic Bottle - Natural	125 mL	00070522054787	Green	No	
003	0967_SW048	HDPE (no PTFE)	20 mL	00350822082809	Grey	No	
003	0967_SW048	HDPE (no PTFE)	20 mL	00350822082687	Grey	No	
004	0967_SW066	HDPE (no PTFE)	20 mL	00350822062499	Grey	No	
004	0967_SW066	Clear Plastic Bottle - Natural	125 mL	00070522068407	Green	No	
004	0967_SW066	HDPE (no PTFE)	20 mL	00350822062532	Grey	No	
005	0967_SW058	Clear Plastic Bottle - Natural	125 mL	00070522054884	Green	No	
005	0967_SW058	HDPE (no PTFE)	20 mL	00350822082350	Grey	No	
005	0967_SW058	HDPE (no PTFE)	20 mL	00350822082376	Grey	No	
006	0967_SW060	Clear Plastic Bottle - Natural	125 mL	00070522054776	Green	No	
006	0967_SW060	HDPE (no PTFE)	20 mL	00350822082683	Grey	No	
006	0967_SW060	HDPE (no PTFE)	20 mL	00350822082644	Grey	No	
007	0967_SW055	Clear Plastic Bottle - Natural	125 mL	00070522068214	Green	No	
007	0967_SW055	HDPE (no PTFE)	20 mL	00350822086383	Grey	No	
007	0967_SW055	HDPE (no PTFE)	20 mL	00350822062469	Grey	No	
008	0967_SW036	HDPE (no PTFE)	20 mL	00350822083337	Grey	No	
008	0967_SW036	HDPE (no PTFE)	20 mL	00350822083231	Grey	No	
008	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522068195	Green	No	
009	0967_QC125	Clear Plastic Bottle - Natural	125 mL	00070522068433	Green	No	
009	0967_QC125	HDPE (no PTFE)	20 mL	00350822062537	Grey	No	

CHAIN OF CUSTODY

COC#: 53553 *ALS Laboratory:* EP Perth

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - ah

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_QC125	HDPE (no PTFE)	20 mL	00350822062461	Grey	No	
010	0967_SW038	HDPE (no PTFE)	20 mL	00350822082699	Grey	No	
010	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522054860	Green	No	
010	0967_SW038	HDPE (no PTFE)	20 mL	00350822082725	Grey	No	

Total Bottle Count: ALS: 30, Non ALS: 0

APPENDIX

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FIELD RECORDS & CALIBRATION CERTIFICATES

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Site	Monitoring Location	Date	Sample ID	Sampling Method	Sample Depth (m)	WaterBody Depth (m)	Flow Rate	Comments	Temp (°C)	DO (mg/L)	EC (us/Cm)	TDS (mg/L)	pH	Eh (mV)	Water Colour	Turbidity
Site drainage channels	SW002	9/06/2023	0967_SW002_230609	Direct into Bottle	0.1	0.1	Medium		15.4	8.01	1243	808	8.34	56.7	Clear	Low
Site drainage channels	SW002	10/06/2023	0967_SW002_230610	Direct into Bottle	0.1	0.1	Slow		13.5	5.21	1389	903	8.26	106.9	Clear	Low
Site drainage channels	SW002	11/06/2023						Dry								
Site drainage channels	SW002	12/06/2023	0967_SW002_230612	Direct into Bottle	0.1	0.1	Slow		10.5	8.59	1430	929	8.32	76.9	Clear	Low
Site drainage channels	SW002	13/06/2023	0967_SW002_230613	Direct into Bottle	0.1	0.1	Slow		11.1	8.68	1395	907	8.36	71.1	Clear	Low
Site drainage channels	SW007	9/06/2023	0967_SW007_230609	Direct into Bottle	0.1	0.2	Slow		15.7	2.05	428.4	278.5	7.36	52.1	Clear	Low
Site drainage channels	SW007	10/06/2023	0967_SW007_230610	Direct into Bottle	0.1	0.2	Slow		14.6	2.37	507	329	7.33	117.2	Clear	Low
Site drainage channels	SW007	11/06/2023	0967_SW007_230611	Direct into Bottle	0.1	0.2	Slow	QC110/210	16.3	5.55	354.1	230.1	7.35	-109.1	Clear	Low
Site drainage channels	SW007	12/06/2023	0967_SW007_230612	Direct into Bottle	0.1	0.2	Slow		13.6	1.55	480	3123	7.24	77.2	Clear	Low
Site drainage channels	SW007	13/06/2023	0967_SW007_230613	Direct into Bottle	0.1	0.2	Slow		14	2.67	592	385	7.23	72.6	Clear	Low
Site drainage channels	SW010	9/06/2023	0967_SW010_230609	Direct into Bottle	0.1	0.3	Medium		14.5	6.25	198.9	129.3	7.59	92	Clear	Low
Site drainage channels	SW010	10/06/2023	0967_SW010_230610	Direct into Bottle	0.1	0.2	Slow		14.3	3.37	233.2	151.6	7.67	116.5	Clear	Low
Site drainage channels	SW010	11/06/2023	0967_SW010_230611	Direct into Bottle	0.1	0.2	Slow	QC112/212	12.6	5.55	200	130	7.06	-100.9	Cloudy	Low
Site drainage channels	SW010	12/06/2023	0967_SW010_230612	Direct into Bottle	0.1	0.2	Slow		12.3	6.18	205.9	133.8	7.17	76.5	Clear	Low
Site drainage channels	SW010	13/06/2023	0967_SW010_230613	Direct into Bottle	0.1	0.1	Slow		11.5	4.81	211.7	137.6	7.02	73.7	Clear	Low
Site drainage channels	SW015	9/06/2023	0967_SW015_230609	Direct into Bottle	0.1	0.4	Slow		14.5	5.22	207.9	135.2	7.68	84.2	Clear	Low
Site drainage channels	SW015	10/06/2023	0967_SW015_230610	Direct into Bottle	0.1	0.2	Slow		15.8	2.75	205.2	133.4	7.57	128.7	Clear	Low
Site drainage channels	SW015	11/06/2023	0967_SW015_230611	Direct into Bottle	0.1	0.2	Slow		13.3	6.59	166.6	108.3	7.01	-97.5	Clear brown	Low
Site drainage channels	SW015	12/06/2023	0967_SW015_230612	Direct into Bottle	0.1	0.2	Slow		14	3.75	184.3	119.7	6.85	76	Clear	Low
Site drainage channels	SW015	13/06/2023	0967_SW015_230613	Direct into Bottle	0.1	0.2	Slow		14.5	3.58	197.1	128.1	6.67	74.1	Clear	Low
Site drainage channels	SW018	9/06/2023	0967_SW018_230609	Direct into Bottle	0.1	0.3	Medium		15.4	6.91	319	207.4	7.86	45.3	Clear	Low
Site drainage channels	SW018	10/06/2023	0967_SW018_230610	Direct into Bottle	0.1	0.2	Slow		15.1	4.44	436.2	283.6	7.81	115.3	Clear	Low
Site drainage channels	SW018	11/06/2023	0967_SW018_230611	Direct into Bottle	0.1	0.2	Slow		14.7	6.07	259.6	168.7	7.67	-101.5	Clear	Low
Site drainage channels	SW018	12/06/2023	0967_SW018_230612	Direct into Bottle	0.1	0.2	Slow		13.7	7.75	3726	242.2	7.77	76.7	Clear	Low
Site drainage channels	SW018	13/06/2023	0967_SW018_230613	Direct into Bottle	0.1	0.2	Slow		13.9	7.76	457.3	297.2	7.77	72.5	Clear	Low
Site drainage channels	SW020	9/06/2023	0967_SW020_230609	Direct into Bottle	0.1	0.5	Fast	QC101/201	15	7.55	318.2	206.8	7.94	62.8	Brown	Medium
Site drainage channels	SW020	10/06/2023	0967_SW020_230610	Direct into Bottle	0.1	0.5	Fast	QC105/205	14.7	4.6	374.1	243.1	7.85	131	Brown	Medium
Site drainage channels	SW020	11/06/2023	0967_SW020_230611	Direct into Bottle	0.1	0.5	Fast		14.1	6.28	217.6	141.5	7.7	-99	Brown	Medium
Site drainage channels	SW020	12/06/2023	0967_SW020_230612	Direct into Bottle	0.1	0.4	Medium	QC113/213	12.1	7.47	345.3	224.4	7.92	76.7	Clear	Low
Site drainage channels	SW020	13/06/2023	0967_SW020_230613	Direct into Bottle	0.1	0.4	Medium	QC121/221	13.3	7.44	401.7	261.2	7.85	76	Clear	Low
Ellen Brook	SW022	9/06/2023	0967_SW022_230609	Direct into Bottle	0.1	0.5	Slow		16.4	5.6	505	328	7.61	52	Brown	Medium
Ellen Brook	SW022	10/06/2023	0967_SW022_230610	Direct into Bottle	0.1	0.5	Slow		15.9	4.53	1114	724	7.62	138.5	Brown	Medium
Ellen Brook	SW022	11/06/2023	0967_SW022_230611	Direct into Bottle	0.1	0.5	Slow		14.6	5.61	623	405.3	7.34	-101.9	Brown	Medium
Ellen Brook	SW022	12/06/2023	0967_SW022_230612	Direct into Bottle	0.1	0.5	Slow	QC116/216	14.8	5.53	751	488	7.69	76.2	Brown	Medium
Ellen Brook	SW022	13/06/2023	0967_SW022_230613	Direct into Bottle	0.1	0.5	Slow		14.5	4.91	964	626	7.5	82.3	Brown	Medium
Ellen Brook	SW025	9/06/2023	0967_SW025_230609	Direct into Bottle	0.1	0.2	Slow		18	3.35	206.2	134	7.25	74.8	Clear	Medium
Ellen Brook	SW025	10/06/2023	0967_SW025_230610	Direct into Bottle	0.1	0.2	Slow		18.5	4.03	215	140.1	8.04	104.4	Clear	Medium
Ellen Brook	SW025	11/06/2023	0967_SW025_230611	Direct into Bottle	0.1	0.2	Slow		16.8	5.17	156.7	101.9	7.06	-102.8	Clear, cloudy	Medium
Ellen Brook	SW025	12/06/2023	0967_SW025_230612	Direct into Bottle	0.1	0.2	Slow		16	3.45	258.7	168.1	7.03	76	Clear	Medium
Ellen Brook	SW025	13/06/2023	0967_SW025_230613	Direct into Bottle	0.1	0.2	Slow		16.1	3.31	2132	138.5	6.8	83.1	Clear	Medium
Ellen Brook	SW028	9/06/2023	0967_SW028_230609	Direct into Bottle	0.1	0.3	Slow		16.9	7.36	127.4	828	7.19	76.2	Brown	Medium
Ellen Brook	SW028	10/06/2023						Dry								
Ellen Brook	SW028	11/06/2023	0967_SW028_230611	Direct into Bottle	0.1	0.2	Slow		15.3	6.24	155.2	100.8	7.32	-100.2	Brown	Medium
Ellen Brook	SW028	12/06/2023	0967_SW028_230612	Direct into Bottle	0.1	0.2	Slow		13	7.22	1945	1264	6.85	76.5	Brown	Medium
Ellen Brook	SW028	13/06/2023	0967_SW028_230613	Direct into Bottle	0.1	0.2	Slow		15.8	6.51	2064	1342	6.79	78.2	Brown	Medium
Ki-it Monger Brook	SW032	9/06/2023	0967_SW032_230609	Direct into Bottle	0.1	0.4	Fast		15	5.58	530	344.4	7.51	-42.3	Brown	Medium
Ki-it Monger Brook	SW032	10/06/2023	0967_SW032_230610	Direct into Bottle	0.1	0.5	Fast		14.6	4.27	414	269	7.53	126.5	Brown	Medium
Ki-it Monger Brook	SW032	11/06/2023	0967_SW032_230611	Direct into Bottle	0.1	0.5	Fast		14.3	6.15	411.2	267.2	7.32	-103.1	Brown	Medium
Ki-it Monger Brook	SW032	12/06/2023	0967_SW032_230612	Direct into Bottle	0.1	0.4	Medium		12.5	6.21	470	305.5	7.44	78.2	Brown	Medium
Ki-it Monger Brook	SW032	13/06/2023	0967_SW032_230613	Direct into Bottle	0.1	0.4	Medium		13.3	6.14	465.1	302.3	7.55	77.2	Brown	Medium
Ki-it Monger Brook	SW034	9/06/2023	0967_SW034_230609	Direct into Bottle	0.1	0.5	Medium		15.1	6.42	439.2	285.5	7.59	2.7	Brown	Medium
Ki-it Monger Brook	SW034	10/06/2023	0967_SW034_230610	Direct into Bottle	0.1	0.5	Medium		15.6	3.28	283.7	184.7	7.41	128.8	Brown	Medium
Ki-it Monger Brook	SW034	11/06/2023	0967_SW034_230611	Direct into Bottle	0.1	0.5	Medium		15	4.88	171.7	111.6	7.24	-103.6	Brown	Medium
Ki-it Monger Brook	SW034	12/06/2023	0967_SW034_230612	Direct into Bottle	0.1	0.3	Medium		14	3.66	244	158.6	7.25	73.7	Brown	Medium
Ki-it Monger Brook	SW034	13/06/2023	0967_SW034_230613	Direct into Bottle	0.1	0.3	Medium		13.8	2.83	285.3	185.4	7.1	79.1	Brown	Medium
Ki-it Monger Brook	SW036	9/06/2023	0967_SW036_230609	Direct into Bottle	0.1	0.3	Medium		16.7	3.44	347.6	225.9	7.15	76.9	Brown	Medium
Ki-it Monger Brook	SW036	10/06/2023	0967_SW036_230610	Direct into Bottle	0.1	0.2	Slow		15.6	5.09	494	302.8	7.36	-109	Brown	Medium
Ki-it Monger Brook	SW036	11/06/2023	0967_SW036_230611	Direct into Bottle	0.1	0.2	Slow		15.7	4.9	493	320.7	7.35	-108.7	Brown	Medium
Ki-it Monger Brook	SW036	12/06/2023	0967_SW036_230612	Direct into Bottle	0.1	0.2	Slow	QC118/218	15.2	3.31	319.9	207.1	7.22	89.3	Brown	Medium
Ki-it Monger Brook	SW036	13/06/2023	0967_SW036_230613	Direct into Bottle	0.1	0.2	Slow	QC125/225	14.2	25.8	483.4	314.3	7.15	57.5	Brown	Medium

Site	Monitoring Location	Date	Sample ID	Sampling Method	Sample Depth (m)	WaterBody Depth (m)	Flow Rate	Comments	Temp (°C)	DO (mg/L)	EC (us/Cm)	TDS (mg/L)	pH	Eh (mV)	Water Colour	Turbidity
Ellen Brook	SW038	9/06/2023	0967_SW038_230609	Direct into Bottle	0.1	0.3	Medium		16.5	4.04	347.8	226.1	7.15	76.8	Brown	Medium
Ellen Brook	SW038	10/06/2023	0967_SW038_230610	Direct into Bottle	0.1	0.2	Slow		15.8	4.55	495	320.3	7.35	-107	Brown	Medium
Ellen Brook	SW038	11/06/2023	0967_SW038_230611	Direct into Bottle	0.1	0.2	Slow		15.8	4.37	492	320.5	7.34	-105	Clear brown	Low
Ellen Brook	SW038	12/06/2023	0967_SW038_230612	Direct into Bottle	0.1	0.2	Slow		15	33.4	3250	211	7.23	88.2	Clear	Low
Ellen Brook	SW038	13/06/2023	0967_SW038_230613	Direct into Bottle	0.1	0.2	Slow		14.9	2.61	475.6	309.1	7.27	60	Clear	Low
Ellen Brook	SW048	9/06/2023	0967_SW048_230609	Direct into Bottle	0.1	0.4	Medium		14.6	5.39	947	615	7.94	116.1	Cloudy	Medium
Ellen Brook	SW048	10/06/2023	0967_SW048_230610	Direct into Bottle	0.1	0.5	Medium	QC108/208	14.9	5.37	1860	1209	7.28	-111.5	Clear brown	Medium
Ellen Brook	SW048	11/06/2023	0967_SW048_230611	Direct into Bottle	0.1	0.4	Medium		15	5.06	1759	1143	7.27	-111.8	Clear brown	Medium
Ellen Brook	SW048	12/06/2023	0967_SW048_230612	Direct into Bottle	0.1	0.3	Medium		13.6	3.77	1022	665	7.18	100.4	Clear brown	Medium
Ellen Brook	SW048	13/06/2023	0967_SW048_230613	Direct into Bottle	0.1	0.3	Medium		12.9	4.12	1114	669	7.23	110.8	Clear Brown	Medium
Ellen Brook	SW049	9/06/2023	0967_SW049_230609	Direct into Bottle	0.1	0.3	Medium		14	3.92	761	494.6	7.98	101.2	Cloudy	Low
Ellen Brook	SW049	10/06/2023	0967_SW049_230610	Direct into Bottle	0.1	0.3	Slow		13.9	5.7	2828	1838	7.54	-149.3	Cloudy	Low
Ellen Brook	SW049	11/06/2023	0967_SW049_230611	Direct into Bottle	0.1	0.3	Slow		13.9	5.5	2826	1837	7.52	-147.6	Cloudy	Low
Ellen Brook	SW049	12/06/2023	0967_SW049_230612	Direct into Bottle	0.1	0.3	Slow		13	3.03	1420	923	7.09	128.7	Brown	Low
Ellen Brook	SW049	13/06/2023	0967_SW049_230613	Direct into Bottle	0.1	0.3	Slow	QC124/224	12.9	2.9	2078	1351	7.02	142.2	Brown	Low
West Bullsbrook	SW055	9/06/2023	0967_SW055_230609	Direct into Bottle	0.1	0.1	Slow		14.6	4.76	668	434.2	7.37	119.3	Clear	Low
West Bullsbrook	SW055	10/06/2023	0967_SW055_230610	Direct into Bottle	0.1	0.1	Slow		16.4	2.61	700	454.9	6.44	-112.3	Clear	Low
West Bullsbrook	SW055	11/06/2023	0967_SW055_230611	Direct into Bottle	0.1	0.1	Slow	Rain overnight	16.5	2.42	700	455.1	6.43	-113.6	Clear brown	Low
West Bullsbrook	SW055	12/06/2023	0967_SW055_230612	Direct into Bottle	0.1	0.2	Slow		14.7	4.94	3612	234.8	6.59	83	Brown	Low
West Bullsbrook	SW055	13/06/2023	0967_SW055_230613	Direct into Bottle	0.1	0.2	Slow		13.1	3.43	700	455	6.63	115.3	Cloudy	Low
West Bullsbrook	SW058	9/06/2023	0967_SW058_230609	Direct into Bottle	0.1	0.3	Slow		16.1	3.38	824	535	7.51	101.7	Brown	Low
West Bullsbrook	SW058	10/06/2023	0967_SW058_230610	Direct into Bottle	0.1	0.3	Slow		17.5	3.03	381	247.6	7.55	128	Brown	Low
West Bullsbrook	SW058	11/06/2023	0967_SW058_230611	Direct into Bottle	0.1	0.3	Slow		15.9	4.44	603	392.1	7.58	-89.1	Clear brown	Low
West Bullsbrook	SW058	12/06/2023	0967_SW058_230612	Direct into Bottle	0.1	0.3	Slow		15	4.16	342.1	222.23	7.75	98.6	Brown	Low
West Bullsbrook	SW058	13/06/2023	0967_SW058_230613	Direct into Bottle	0.1	0.3	Slow		13	3.29	640	416.1	7.63	109.1	Brown	Low
West Bullsbrook	SW060	9/06/2023	0967_SW060_230609	Direct into Bottle	0.1	0.5	Slow		16.2	3.1	836	543	7.49	97.2	Brown	Low
West Bullsbrook	SW060	10/06/2023	0967_SW060_230610	Direct into Bottle	0.1	0.5	Slow		17.9	4.22	691	449.2	7.65	145.5	Brown	Low
West Bullsbrook	SW060	11/06/2023	0967_SW060_230611	Direct into Bottle	0.1	0.5	Slow		15.8	6.45	605	393.4	7.57	-77.7	Clear brown	Low
West Bullsbrook	SW060	12/06/2023	0967_SW060_230612	Direct into Bottle	0.1	0.5	Slow	QC120/220	14.9	4	641	416	7.55	101.7	Brown	Low
West Bullsbrook	SW060	13/06/2023	0967_SW060_230613	Direct into Bottle	0.1	0.4	Slow		13.1	2.4	704	458	7.58	124.1	Brown	Low
Twin Swamps NR	SW066	9/06/2023	0967_SW066_230609	Direct into Bottle	0.1	0.1	Slow		15.2	4.36	793	515	7.41	106.8	Brown	Low
Twin Swamps NR	SW066	10/06/2023	0967_SW066_230610	Direct into Bottle	0.1	0.1	Slow		14.2	3	925	601	7.12	-133.6	Brown, cloudy	Low
Twin Swamps NR	SW066	11/06/2023	0967_SW066_230611	Direct into Bottle	0.1	0.1	Slow		14.6	2.9	924	600	7.11	-130.4	Brown	Low
Twin Swamps NR	SW066	12/06/2023	0967_SW066_230612	Direct into Bottle	0.1	0.1	Slow		15.7	3.26	1067	674	7.19	106.1	Brown	Low
Twin Swamps NR	SW066	13/06/2023	0967_SW066_230613	Direct into Bottle	0.1	0.1	Slow		14	3.85	1000	640	7.2	98.3	Cloudy	Low
Twin Swamps NR	SW067	9/06/2023	0967_SW067_230609	Direct into Bottle	0.1	0.2	Slow	QC103/203	14.9	3.81	871	566	7.48	114.3	Brown	Low
Twin Swamps NR	SW067	10/06/2023						Dry								
Twin Swamps NR	SW067	11/06/2023						Dry								
Twin Swamps NR	SW067	12/06/2023						Dry								
Twin Swamps NR	SW067	13/06/2023						Dry								

Site	Monitoring Location	Date	Sample ID	Depth of Sediment Sampling (m)	Sampling Method	Sample Condition	Sample Description	QC samples
Site drainage channels	SD002	9/06/2023	0967_SD002_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, trace organics, light brown, no odour	
Site drainage channels	SD002	10/06/2023	0967_SD002_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, trace organics, light brown, no odour	
Site drainage channels	SD002	11/06/2023	0967_SD002_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, trace organics, brown, no odour	QC109/209
Site drainage channels	SD002	12/06/2023	0967_SD002_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, no odour	
Site drainage channels	SD002	13/06/2023	0967_SD002_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, trace gravels, no odour	
Site drainage channels	SD007	9/06/2023	0967_SD007_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium, well graded, dark brown, trace organics	
Site drainage channels	SD007	10/06/2023	0967_SD007_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium, well graded, dark brown, trace organics	
Site drainage channels	SD007	11/06/2023	0967_SD007_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium, well graded, dark brown	
Site drainage channels	SD007	12/06/2023	0967_SD007_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels	
Site drainage channels	SD007	13/06/2023	0967_SD007_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, well graded, trace organics, trace gravels	
Site drainage channels	SD015	9/06/2023	0967_SD015_230609	0.1	Shovel, Trowel	Wet	Gravelly sand brown, fine to medium grained, brown, no odour, trace organics	
Site drainage channels	SD015	10/06/2023	0967_SD015_230610	0.1	Shovel, Trowel	Wet	Gravelly sand brown, fine to medium grained, brown, no odour, trace organics	
Site drainage channels	SD015	11/06/2023	0967_SD015_230611	0.1	Shovel, Trowel	Wet	Gravelly sand brown, fine to medium grained, brown, no odour	
Site drainage channels	SD015	12/06/2023	0967_SD015_230612	0.1	Shovel, Trowel	Wet	Gravelly sand brown, fine to medium grained, brown, no odour, trace gravels	
Site drainage channels	SD015	13/06/2023	0967_SD015_230613	0.1	Shovel, Trowel	Wet	Gravelly sand brown, fine to medium grained, brown, no odour, trace gravels	
Site drainage channels	SD020	9/06/2023	0967_SD020_230609	0.1	Shovel, Trowel	Wet	Sandy clay, fine, brown, stiff, trace gravels	
Site drainage channels	SD020	10/06/2023	0967_SD020_230610	0.1	Shovel, Trowel	Wet	Sandy clay, fine grained, brown, stiff, trace gravels, trace organics	QC106/206
Site drainage channels	SD020	11/06/2023	0967_SD020_230611	0.1	Shovel, Trowel	Wet	Sandy clay, fine grained, brown, stiff trace gravels	QC111/211
Site drainage channels	SD020	12/06/2023	0967_SD020_230612	0.1	Shovel, Trowel	Wet	Sandy clay, fine grained, brown, stiff, trace gravels	
Site drainage channels	SD020	13/06/2023	0967_SD020_230613	0.1	Shovel, Trowel	Wet	Sandy clay, fine grained,brown, stiff, trace organics, trace gravels	
Ellen Brook	SD022	9/06/2023	0967_SD022_230609	0.1	Shovel, Trowel	Wet	Clay, fine grained, brown, firm, trace gravels, trace organics	
Ellen Brook	SD022	10/06/2023	0967_SD022_230610	0.1	Shovel, Trowel	Wet	Clay, fine grained, brown, firm, trace gravels, trace organics	
Ellen Brook	SD022	11/06/2023	0967_SD022_230611	0.1	Shovel, Trowel	Wet	Clay, fine grained, brown, firm, trace gravels, trace organics	
Ellen Brook	SD022	12/06/2023	0967_SD022_230612	0.1	Shovel, Trowel	Wet	Clay, fine grained, brown, firm, trace gravels, trace organics	
Ellen Brook	SD022	13/06/2023	0967_SD022_230613	0.1	Shovel, Trowel	Wet	Clay, fine grained, brown, firm, trace gravels, trace organics	
Ellen Brook	SD025	9/06/2023	0967_SD025_230609	0.1	Shovel, Trowel	Wet	Clay, fine grained, light brown, stiff, trace organics, trace gravels	
Ellen Brook	SD025	10/06/2023	0967_SD025_230610	0.1	Shovel, Trowel	Wet	Clay, fine grained, light brown, stiff, trace organics, trace gravels	
Ellen Brook	SD025	11/06/2023	0967_SD025_230611	0.1	Shovel, Trowel	Wet	Clay, fine grained, light brown, stiff, trace organics	
Ellen Brook	SD025	12/06/2023	0967_SD025_230612	0.1	Shovel, Trowel	Wet	Clay, fine grained, light brown, stiff, trace organics	QC115/215
Ellen Brook	SD025	13/06/2023	0967_SD025_230613	0.1	Shovel, Trowel	Wet	Clay, fine grained, light brown, stiff, trace organics, trace gravels	QC122/222
Ellen Brook	SD028	9/06/2023	0967_SD028_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, dark brown, trace organics	
Ellen Brook	SD028	10/06/2023	0967_SD028_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, dark brown, trace organics	
Ellen Brook	SD028	11/06/2023	0967_SD028_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, dark brown, trace organics	
Ellen Brook	SD028	12/06/2023	0967_SD028_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, dark brown, trace organics	
Ellen Brook	SD028	13/06/2023	0967_SD028_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, dark brown, trace organics	
Ki-it Monger Brook	SD032	9/06/2023	0967_SD032_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, trace organics	QC102/202
Ki-it Monger Brook	SD032	10/06/2023	0967_SD032_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD032	11/06/2023	0967_SD032_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD032	12/06/2023	0967_SD032_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, trace organics	QC114/214
Ki-it Monger Brook	SD032	13/06/2023	0967_SD032_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD034	9/06/2023	0967_SD034_230609	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD034	10/06/2023	0967_SD034_230610	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD034	11/06/2023	0967_SD034_230611	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD034	12/06/2023	0967_SD034_230612	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD034	13/06/2023	0967_SD034_230613	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ki-it Monger Brook	SD036	9/06/2023	0967_SD036_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, no odour	
Ki-it Monger Brook	SD036	10/06/2023	0967_SD036_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, no odour	
Ki-it Monger Brook	SD036	11/06/2023	0967_SD036_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, no odour	
Ki-it Monger Brook	SD036	12/06/2023	0967_SD036_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, no odour	QC117/217
Ki-it Monger Brook	SD036	13/06/2023	0967_SD036_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, brown, trace organics, no odour	QC126/226
Ellen Brook	SD049	9/06/2023	0967_SD049_230609	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ellen Brook	SD049	10/06/2023	0967_SD049_230610	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ellen Brook	SD049	11/06/2023	0967_SD049_230611	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ellen Brook	SD049	12/06/2023	0967_SD049_230612	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	
Ellen Brook	SD049	13/06/2023	0967_SD049_230613	0.1	Shovel, Trowel	Wet	Clayey Sand, fine to medium grained, brown, trace gravels, trace organics	QC123/223

Site	Monitoring Location	Date	Sample ID	Depth of Sediment Sampling (m)	Sampling Method	Sample Condition	Sample Description	QC samples
West Bullsbrook	SD055	9/06/2023	0967_SD055_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, black, trace organics, trace gravels	
West Bullsbrook	SD055	10/06/2023	0967_SD055_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, black, trace organics, trace gravels	
West Bullsbrook	SD055	11/06/2023	0967_SD055_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, black, trace organics, trace gravels	
West Bullsbrook	SD055	12/06/2023	0967_SD055_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, black, trace organics, trace gravels	
West Bullsbrook	SD055	13/06/2023	0967_SD055_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, black, trace organics, trace gravels	
West Bullsbrook	SD058	9/06/2023	0967_SD058_230609	0.1	Shovel, Trowel	Wet	Sand, medium to coarse grained, light brown, loose, trace organics	
West Bullsbrook	SD058	10/06/2023	0967_SD058_230610	0.1	Shovel, Trowel	Wet	Sand, medium to coarse grained, light brown, loose, trace organics	
West Bullsbrook	SD058	11/06/2023	0967_SD058_230611	0.1	Shovel, Trowel	Wet	Sand, medium to coarse grained, light brown, loose, trace organics	
West Bullsbrook	SD058	12/06/2023	0967_SD058_230612	0.1	Shovel, Trowel	Wet	Sand, medium to coarse grained, light brown, loose, trace organics	
West Bullsbrook	SD058	13/06/2023	0967_SD058_230613	0.1	Shovel, Trowel	Wet	Sand, medium to coarse grained, light brown, loose, trace organics	
West Bullsbrook	SD060	9/06/2023	0967_SD060_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, no odour	
West Bullsbrook	SD060	10/06/2023	0967_SD060_230610	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, no odour	
West Bullsbrook	SD060	11/06/2023	0967_SD060_230611	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, no odour	
West Bullsbrook	SD060	12/06/2023	0967_SD060_230612	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, no odour	QC119/219
West Bullsbrook	SD060	13/06/2023	0967_SD060_230613	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, no odour	
Pearce/Twin Swamps NR	SD061	9/06/2023	0967_SD061_230609	0.1	Shovel, Trowel	Wet	Clay, fine grained, dark brown to black, firm, trace organics	
Pearce/Twin Swamps NR	SD061	10/06/2023	0967_SD061_230610	0.1	Shovel, Trowel	Wet	Clay, fine grained, dark brown to black, firm, trace organics	
Pearce/Twin Swamps NR	SD061	11/06/2023	0967_SD061_230611	0.1	Shovel, Trowel	Wet	Clay, fine grained, dark brown to black, firm, trace organics	
Pearce/Twin Swamps NR	SD061	12/06/2023	0967_SD061_230612	0.1	Shovel, Trowel	Wet	Clay, fine grained, dark brown to black, firm, trace organics	
Pearce/Twin Swamps NR	SD061	13/06/2023	0967_SD061_230613	0.1	Shovel, Trowel	Wet	Clay, fine grained, dark brown to black, firm, trace organics	
Pearce/Twin Swamps NR	SD062	9/06/2023	0967_SD062_230609	0.1	Shovel, Trowel	Wet	Sand, fine to medium grained, grey to brown, trace fines, trace organics	QC104/204
Pearce/Twin Swamps NR	SD062	10/06/2023	0967_SD062_230610	0.1	Shovel, Trowel	Dry	Sand, fine to medium grained, grey to brown, trace fines, trace organics	QC107/207
Pearce/Twin Swamps NR	SD062	11/06/2023	0967_SD062_230611	0.1	Shovel, Trowel	Dry	Sand, fine to medium grained, grey to brown, trace fines, trace organics	
Pearce/Twin Swamps NR	SD062	12/06/2023	0967_SD062_230612	0.1	Shovel, Trowel	Dry	Sand, fine to medium grained, grey to brown, trace fines, trace organics	
Pearce/Twin Swamps NR	SD062	13/06/2023	0967_SD062_230613	0.1	Shovel, Trowel	Dry	Sand, fine to medium grained, grey to brown, trace fines, trace organics	

GK Environmental EQUIPMENT

Calibration Report

Multi-Parameter Water Quality Instrument

Customer:
Contact:

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 22H102051
Cable length: 1m (22B100428)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	172.30 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.36
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 12 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (22D100150)	Check Temp NATA	Room Temp	17.1	-0.1	°C	NA	17	°C
pH (22M)	pH 7.00	392512	7.01	-5.30	mV	7.05	7.01	pH
pH (22M)	pH 4.00	394799	4.00	167.00	mV	4.01	4.00	pH
Conductivity (22D100150)	2764 µs/cm at 25°C	21/1012	2764	GLP	5.06	2774	2764	µs/cm
ORP (22J)	Zobell A & B	23/1101	247	247	mV	235.5	234.7	mV
Zero DO (22E100254)	NaSO3 in distilled water	10175	0.0	NA	NA	-0.1	0.0	%
100% DO (22E100254)	100% Air Saturation	Air	100.0	4.3	uA	98.1	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 05-Jun-23
Next Due: 02-Dec-23

GK Environmental EQUIPMENT

Calibration Report

Multi-Parameter Water Quality Instrument

Customer:
Contact:

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 22H102060
Cable length: 1m (22B100428)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	171.50 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.08
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 12 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (22D100150)	Check Temp NATA	Room Temp	16.9	-0.1	°C	NA	16.8	°C
pH (22M)	pH 7.00	392512	7.01	-6.90	mV	7.03	7.01	pH
pH (22M)	pH 4.00	394799	4.00	164.60	mV	4.06	4.00	pH
Conductivity (22D100150)	2764 µs/cm at 25°C	21/1012	2764	GLP	5.07	2721	2764	µs/cm
ORP (22J)	Zobell A & B	23/1101	247	247	mV	222.3	235	mV
Zero DO (22J100169)	NaSO3 in distilled water	10175	0.0	NA	NA	0.6	0.0	%
100% DO (22J100169)	100% Air Saturation	Air	100.0	4.4	uA	100	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 26-May-23
Next Due: 22-Nov-23

GK Environmental EQUIPMENT

Calibration Report

Multi-Parameter Water Quality Instrument

Customer:
Contact:

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 22C103026
Cable length: 1m (22B100428)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	171.40 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.06
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 12 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (22B100315)	Check Temp NATA	Room Temp	16.7	0	°C	NA	16.7	°C
pH (22D)	pH 7.00	392512	7.01	-13.90	mV	7.04	7.01	pH
pH (22D)	pH 4.00	394799	4.00	157.50	mV	3.98	4.00	pH
Conductivity (22B100315)	2764 µs/cm at 25°C	21/1012	2764	GLP	5.00	2753	2764	µs/cm
ORP (22B)	Zobell A & B	23/1101	247	247	mV	264.6	235.2	mV
Zero DO (22E100254)	NaSO3 in distilled water	10175	0.0	NA	NA	0.1	0.0	%
100% DO (22E100254)	100% Air Saturation	Air	100.0	4.2	uA	102.1	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 15-May-23
Next Due: 11-Nov-23

Date of Bump Test	Site ID	Unit Brand/ Model	Ambient Air Oxygen Calibration	Zero % Oxygen Solution Calibration	Standard Concentrations	Ambient Temperature (°C)	Bump Test Reading	Bump Test Readings within ±5%?	Comment	Test by (Name)	(Signature)
10/6	Pearce 0967	YSI # 22H102060	100% Saturation? (Y) N	0% Calibration? Y N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	16	pH 4.00: 4.08 pH 7.00: 7.04 EC: 1468	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	—	[redacted]	
10/6	0967	YSI # 22H103026	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	16	pH 4.00: 4.11 pH 7.00: 7.11 EC: 1452	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) Y / N	/	[redacted]	
11/6	0967	YSI # 22H103026	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	15.5	pH 4.00: 4.04 pH 7.00: 7.10 EC: 1448	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	/	[redacted]	
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			

Date of Bump Test	Site ID	Unit Brand/ Model	Ambient Air Oxygen Calibration	Zero % Oxygen Solution Calibration	Standard Concentrations	Ambient Temperature (°C)	Bump Test Reading	Bump Test Readings within ±5%?	Comment	Test by (Name)	(Signature)
9/6/23	0967_	YSI # 22H102060	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N EC 2,760 us/cm (Y)/N	13.1	pH 4.00: 4.07 pH 7.00: 7.02 EC: 1,498 2,810	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	–	[redacted]	[redacted]
9/6/23	0967_	YSI #22H102057	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N EC: 2,760 us/cm	12.6	pH 4.00: 4.12 pH 7.00: 7.08 EC: 1,476 2,850	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N	–	[redacted]	[redacted]
12/6/23	0967_	YSI #22H102060	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N EC 2,760 us/cm (Y)/N	11.8	pH 4.00: 4.09 pH 7.00: 7.14 EC: 1,418 2,818	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	–	[redacted]	[redacted]
12/6/23	0967_	YSI # 22H102057	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N 2,760 us/cm (Y)/N	12.1	pH 4.00: 4.12 pH 7.00: 7.03 Temp: 1,515 EC: 2,816	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N	–	[redacted]	[redacted]
13/6/23	0967_	YSI # 22H102060	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N 2,760 us/cm (Y)/N	12.5	pH 4.00: 4.08 pH 7.00: 7.07 Temp: 1,468 EC: 2,790	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	–	[redacted]	[redacted]
13/6/23	0967_	YSI # 22H102057	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N 2,760 us/cm (Y)/N	12.8	pH 4.00: 4.03 pH 7.00: 7.02 Temp: 1,428 EC: 2,808	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	–	[redacted]	[redacted]
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			
		YSI #	100% Saturation? Y N	0% Calibration? Y N NA	pH 4.00 Y / N pH 7.00 Y / N EC: 1,413µS/cm Y / N		pH 4.00: pH 7.00: Temp: EC:	pH 4.00: (± pH 0.2) Y / N pH 7.00: (± pH 0.2) Y / N EC: (± 150µS/cm) Y / N			

APPENDIX

E

DATA QUALITY REVIEW

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Data Quality Review
PFAS Ongoing Monitoring Plan
First Flush 2023 Monitoring Event

This appendix reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing as well as results of QC samples submitted such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

QA/QC Aspects	Evidence & Evaluation
	QA Documentation
Project Quality Plan/Work Plan and Data Quality Objectives	The field investigation was carried out between the 9th and 13th June 2023 and is generally in accordance with the proposed scope of work, as documented in the SAQP (*PFAS OMP SAQP RAAF Base Pearce Rev 7*, Cardno, March 2023) issued to the client and in general compliance with Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling*, NEPM *National Environment Protection (Assessment of Site Contamination) Measure* and *PFAS NEMP 2.0.* A quality control program was implemented during the Investigation and the quality assurance procedures used have been reiterated in the report (PFAS OMP First Flush 2023 Factual Report). In addition, a safety, health and environment work method statement (SHEWMS) was also prepared. The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.
	Data Representativeness
Use of Composites	No Composites were used during the investigation
Holding Times	Chain of custody and laboratory reports provide evidence of holding times. All laboratory reports reported holding times in compliance with required timeframes.
Verification of field procedures	The methodology conducted during this investigation is documented in the body of the report and was in general conformance with the SAQP. Non-disposable equipment was decontaminated between sample locations.
Laboratory Reports	The following laboratory reports were considered for this data quality review: ▪ ALS reports: EP2307633, EP2307634, EP2307642, EP2307643, EP2307674, EP2307675, EP2307676, EP2307677, EP2307678, EP2307679, EP2307715, EP2307716, EP2307718, EP2307719, EP2307798, EP2307799, EP2307805, EP2307806, ▪ Eurofins report: 999535

QA/QC Aspects	Evidence & Evaluation

Data Precision & Accuracy

QC sample Frequency

QC sample type	SAQP required frequency	Sample Collected
Blind duplicate	1 in 10 primary samples (10%)	13 in 96 surface water samples (13.50%) 13 in 80 sediment samples (16.25%)
Interlab duplicate	1 in 10 primary samples (10%)	13 in 96 surface water samples (13.50%) 13 in 80 sediment samples (16.25%)
Rinsate	1 per equipment per day	9 for 5 days (1-2 teams) (100%)
Field Blank	1 per day	9 for 5 days (1-2 teams) (100%)

All QC frequencies required were met, therefore the dataset is considered valid and complete.

RPD Acceptance criteria

Magnitude of Results	Acceptable RPD range
< 10 x LOR	No limits
10 – 20 LOR	0% - 50%
> 20 x LOR	0% - 20%

QC Testing – Blind Duplicates (Primary Lab)

Surface water

- Primary surface water Samples Analysed: 96
- Blind Duplicate Samples Analysed: 13

All RPDs were within acceptance criteria with the following exceptions:

- **QC110** (PFDS – 49%); **QC112** (PFDS – 55%).

These exceedances are possibly due to sample heterogeneity and the low level of analytes concentrations. Reported concentrations for primary and secondary samples are within expected range and this doesn't change the outcome of the assessment.

Sediment

- Primary Sediment Samples Analysed: 80
- Blind Duplicate Samples Analysed: 13

All RPDs were within acceptance criteria with the following exceptions:

- **QC102** (PFOS – 21%, Sum of PFHxS and PFOS – 25%, Sum of PFAS (WA DER list – 30%, Sum of PFAS – 30%); **QC106** (PFOS – 53%, Sum of PFHxS and PFOS – 51%, Sum of PFAS [WA DER list] – 51%, Sum of PFAS – 51%); **QC109** (PFHxS – 59%, PFOS – 75%, Sum of PFHxS and PFOS – 74%, Sum of PFAS [WA DER list] – 74%, Sum of PFAS – 76%); **QC114** (PFOS – 31%, Sum of PFHxS and PFOS – 29%, Sum of PFAS [WA DER list] – 29%, Sum of PFAS – 30%); **QC115** (PFHxS – 38%, PFOS – 51%, Sum of PFHxS and PFOS – 50%, Sum of PFAS [WA DER list] – 50%, Sum of PFAS – 51%); **QC117** (PFOS – 44%, Sum of PFHxS and PFOS – 44%, Sum of PFAS [WA DER list] – 44%, Sum of PFAS – 46%); **QC122** (PFHxS – 53%, PFOS – 92%, Sum of PFHxS and PFOS – 82%, Sum of PFAS [WA DER list] – 82%, Sum of PFAS – 81%); **QC126** (PFOS – 99%, Sum of PFHxS and PFOS – 97%, Sum of PFAS (WA DER list) – 97%, Sum of PFAS – 97%)

These exceedances are possibly due to sample heterogeneity and the low level of analytes concentrations. Reported concentrations for primary and secondary samples are within expected range and this doesn't change the outcome of the assessment.

QC Testing – Interlab Duplicates (Secondary Lab)

Surface water

- Primary surface water Samples Analysed: 96
- Interlab Duplicate Samples Analysed: 13

QA/QC Aspects	Evidence & Evaluation
	All RPDs were within acceptance criteria with the following exceptions: ▪ **QC205** (PFOS – 37%); **QC210** (PFBS – 28%, PFPeS – 48%, PFHxS – 74%, PFHpS – 21%, PFOS – 89%, PFPeA – 37%, PFHxA – 69%, PFOA – 30%, FOSA – 31%, Sum of PFHxS and PFOS – 87%, Sum of PFAS [WA DER list] – 84, Sum of PFAS – 82%); **QC212** (PFHxS – 27%, PFHpS – 32%, PFOS – 68%, PFPeA – 28%, PFHxA – 24%, PFHpA – 24%, PFOA – 25%, Sum of PFHxS and PFOS – 58%, Sum of PFAS [WA DER list] – 52%, Sum of PFAS – 51%); **QC213** (PFOS – 26%); **QC216** (PFOS – 23%); **QC218** (PFOS – 21%); **QC224** (PFOS – 24%); **QC225** (PFOS - 25%). These exceedances are probably due to sample heterogeneity, the difference of laboratory methods or the low concentrations of analyte under review. The reported concentrations were within the same order of magnitude, and this doesn't affect the reliability of the dataset or outcome of the investigation. ***Sediment*** ▪ Primary sediment Samples Analysed: 80 ▪ Interlab Duplicate Samples Analysed: 13 All RPDs were within acceptance criteria with the following exceptions: ▪ **QC202** (PFOS - 25%, Sum of PFHxS and PFOS – 35%); **QC209** (PFOS – 49%, Sum of PFHxS and PFOS – 40%, Sum of PFAS – 40%; **QC211** (PFOS – 26%, Sum of PFHxS and PFOS – 40%, SUM of PFAS [WA DER list] – 40%); **QC215** (PFOS – 48%, SUM of PFHxS and PFOS – 55%, SUM of PFAS [WA DER list] – 56%, Sum of PFAS – 38%); **QC217** (PFOS – 93%, Sum of PFHxS and PFOS – 88%, Sum of PFAS [WA DER list] – 88%); **QC222** (PFOS – 65%, Sum of PFHxS and PFOS – 68%, Sum PFAS [WA DER list] – 69%, Sum of PFAS – 70%); **QC226** (PFOS – 155%, Sum of PFHxS – 152%, Sum of PFAS [WA DER list] – 152%) These exceedances are probably due to sample heterogeneity, the difference of laboratory methods or the low concentrations of analyte under review. The reported concentrations were within the same order of magnitude, and this doesn't affect the reliability of the dataset or outcome of the investigation.
Field Blanks	Field Blanks were collected at a rate of one per fieldwork day per field team. All field blank samples tested reported analytes below the laboratory limit of reporting.
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the reports. ALS (Primary) performed internal QC with adequate testing and satisfactory results for method blank, laboratory control samples and laboratory duplicates. All Method Blank results were within acceptable range. All Matrix Spikes generally reported recoveries within the acceptance range of 70% to 130% with the exception of the following: ▪ EP2307799: - Sample ID: SD020: PFOS, Sum of PFAS, Sum of PFHxS and PFOS and Sum of PFAS (WA DER list) RPD exceeds LOR based limits. - Sample ID: anonymous: PFOS matrix spike recovery not determined, backgro8und level greater than or equal to 4x spike level. ▪ EP2307805: - Samples IDs: QC123, anonymous: PFDS matrix spike recovery less than lower data quality objective ▪ EP2307716, EP2307674: - Sample IDs: anonymous, SD025: PFPeS, PFHxS recovery greater than upper data quality objective - Sample ID: anonymous PFOS matrix spike recovery not determined, background level greater than or equal to 4x spike level. ▪ EP2307716: - Sample IDs: QC109: PFHxS, PFOS, Fluorotelomer sulfonic acid matrix spike recovery not determined, background level greater than or equal to 4x spike level. ▪ EP2307634:

QA/QC Aspects	Evidence & Evaluation
	- Sample IDs: anonymous: Sulfate as SO4, Chloride matrix spike recovery not determined background level greater than or equal to 4x spike level. ▪ EP2307634, EP2307643: - Sample IDs: anonymous, SW025: PFOS matrix spike recovery not determined, background level greater than or equal to 4x spike level. The following quality control samples frequency outliers were reported: ▪ EP2307806, EP2307798, EP2307718, EP2307715, EP2307678, EP2307676, EP2307675, EP2307634 EP3207643: - Laboratory Duplicates (PFAS): expected frequency of 10% not achieved. - Matrix Spikes (PFAS): expected frequency of 5% not achieved. The above outliers/exceptions are not considered to affect the reliability of the dataset.
Laboratory Method Detection Limit	Laboratory reports indicate the method detection limits were lower than the respective assessment criteria.
NATA endorsement of laboratory reports	Laboratory reports were stamped with the NATA endorsement stamp and signature. ALS Accreditation No. 825 Eurofins ARL Accreditation No. 1261
Calibration of Field Equipment	All equipment used during the investigation was calibrated by the supplier prior to use and daily readings of reference solutions (bump tests) were completed. The equipment calibration certificates, and daily field bump test records are provided in Appendix D.
Decontamination and Equipment Blanks	Rinsate blanks were collected at a rate of one per day per sampler when reusable equipment was used. All rinsate samples tested reported analytes concentrations below the laboratory LORs.
Data Comparability	
Standard Procedures	Fieldwork procedures are detailed in the SAQP and reports and are comparable for each phase of Investigation.
Qualified Personnel	Staff involved in managing and reviewing the project and those involved in fieldwork are qualified personnel.
Sample Integrity	Field Chain of Custody/Laboratory request forms can be found in Appendix C.
Data Completeness	
Completeness of test program	The scope of work undertaken was consistent with the SAQP.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection process and therefore, the data set used as the basis for groundwater, surface water, tap water and sediment investigation is considered valid and complete.

PFAS OMP Biannual Sampling Event Factual Report

Post-winter 2023

RAAF Base Pearce

304700525



Prepared for
Department of Defence

13 February 2024

Cardno

now

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

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Chemical Names

DOC	Dissolved Organic Carbon
DO	Dissolved Oxygen
PFAS	Per- and Poly-fluoroalkyl Substances
PFHxS	Perfluorohexane Sulphonate
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
TDS	Total Dissolved Solids (salinity of water)

Technical Terms

AFFF	Aqueous Film Forming Foam
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
AS	Australian Standard
BGL	Below Ground Level
COC	Chain of Custody
DQI	Data Quality Indicator
DQO	Data Quality Objective
EC	Electrical Conductivity
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
LOR	Limit of Reporting
N/A	Not Applicable
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environmental Protection Measure
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
RWL	Reduced water level
SAQP	Sampling and Analysis Quality Plan
SWL	Standing water level

Units

ha	Hectares
mAHD	Metres relative to the Australian Height Datum
mBGL	Metres Below Ground Level
mbTOC	Metres below Top of Casing
mg/kg	Milligram per Kilogram (approximately equivalent to ppm)
mg/L	Milligram per Litre
µg/L	Micrograms per Litre
µS/cm	Micro Siemens per Centimetre (Electrical Conductivity - Water)

Site Specific

OMP	Ongoing Monitoring Plan
FTA	Fire Training Area
PMAP	PFAS Management Area Plan

1 Introduction

1.1 Background

Cardno, now Stantec ("Cardno") was engaged by the Australian Department of Defence ("Defence") to carry out the per- and poly-Fluoroalkyl Substances (PFAS) Ongoing Monitoring Plan (OMP) at and around RAAF Base Pearce ("the site"). The site is located in Bullsbrook, Western Australia (WA) and is displayed in Figure 1 of Appendix A.

The OMP was carried out in accordance with the scope and limitations presented in Cardno's Sampling and Analysis Quality Plan (SAQP):

> Cardno, August 2023, Reference: DEF19009, *PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP) RAAF Base Pearce* Rev 8.

The SAQP was reviewed prior to the monitoring event and minor formatting changes were made.

For the purposes of this report:

> "the site" was defined as RAAF Base Pearce (Figure 1, Appendix A).

> "the Management Area" was defined as comprising the site, plus a number of surrounding (off-site) waterways and privately owned and leased properties; including residential premises (Figure 1, Appendix A).

1.2 Purpose & Objectives

The objective of the OMP is to assess the changes in the nature and extent of PFAS within the environment, specifically where there is an identified potentially elevated risk to a receptor or a potential future risk to a receptor associated with Defence's historical use of legacy Aqueous Film Forming Foam (AFFF).

The purpose of this PFAS OMP factual report is to provide an up-to-date status of the condition of the site as it is currently understood in relation to the most recent sampling event.

The objectives of the report are:

> To provide a succinct summary of the post-winter 2023 sampling event and provision of analytical results with supporting tables and figures.

> To provide confirmation of the current understanding of risk.

> To provide supporting data for the assessment of management actions, where relevant.

1.3 Relevant Guidelines

This assessment has been undertaken in general accordance with applicable industry standards for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

> National Environment Protection Council (NEPC), 1999, *National Environmental Protection (Assessment of Site Contamination) Measure* (as amended 2013) (ASC NEPM).

> Heads of Environmental Protection Authority's Australia and New Zealand (HEPA), January 2020, *PFAS National Environmental Management Plan* (NEMP) 2.0.

> Australian Standard AS 4482-*2005 Guide to the investigation and sampling of sites with potentially contaminated soils*, *Part 1 - Non-volatile and semi-volatile compounds*.[1]

> Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling*.

> Australian and New Zealand Guidelines, 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

[1] AS4482 has been withdrawn but is referred to as a state of knowledge

- Department of Water and Environmental Regulation (DWER), 2021, *Assessment and Management of Contaminated Sites*[2].
- Department of Defence, 2021, *Defence Contamination Management Manual* (DCMM) Annex L Data Management.
- U.S. Environmental Protection Agency (EPA), 2000, *Guidance for the Data Quality Objectives Process (EPA QA/G-4).*
- USEPA, 2002, *Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).*
- National Health and Medical Research Council (NHMRC), August 2019, *Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water*.

2 Scope of Work

Cardno carried out the tasks detailed in the following sections in order to satisfy the purpose and objectives of this assessment.

2.1 Groundwater Monitoring

Sampling of selected groundwater monitoring wells and private bores was performed in general accordance with the SAQP, applying methods set out in Section 3.1 of this report. The groundwater monitoring wells and private bores monitored as part of the OMP are presented in Table 2-1, and are shown on Figure 2, Appendix A.

Table 2-1 Groundwater Monitoring Locations

Monitoring Area	Location ID
On-Site – Source Areas (17)	**Source Area A** – MW015, MW052, MW053, MW055, MW101, MW102 **Source Area B** – MW103, MW104, MW105 **Source Area C** – MW107, MW109 MW110 **Source Area D** – MW112, MW113 **Source Area J** – MW155S **Source Area R** – MW202, MW205
On-Site – Other (26)	MW114, MW115, MW116, MW117, MW118, MW119, MW120, MW121, MW122S/D, MW123S/D, MW124S/D, MW139, MW138, MW140S/D, MW132S/D, MW134S/D, MW146, MW149, MW150, MW218
Off-Site (53)	**Monitoring wells** (12): MW125S/D, MW126, MW127, MW128S/D, MW129S/D, MW130S/D, MW136, MW137 **Private bores**[1](41): POT003, POT009, POT014, POT015, POT018, POT019, POT020, POT021, POT027, POT029, POT030, POT031, POT032, POT040, POT042, POT044, POT052, POT070S/D, POT073, POT076, POT080, POT081, POT086, POT089, POT092, POT099, POT100, POT114, POT116, POT124, POT125, POT127, POT128, POT136, POT137, POT147, POT155, POT159, POT165, POT181.

Note:
1. Some private bore locations are not shown on Figure 2 at the request of the property owners.

[2] It is noted that the site is located on Commonwealth Land and is regulated under the Commonwealth environmental legislation, the State based DWER guidelines are relevant for the sampling of off-site private properties and waterways.

2.2 Surface Water Monitoring

Sampling of selected surface water monitoring locations was performed in general accordance with the SAQP, applying methods set out in section 3.2 of this report. The surface water locations monitored as part of the OMP are presented in Table 2-2, and are shown on Figure 3, Appendix A.

Table 2-2 Surface Water Monitoring Locations

Monitoring Area		Location ID
On-Site	Site drainage channels (11)	SW002, SW004, SW005, SW007, SW008, SW010, SW013, SW015, SW016, SW018, SW020
Off-Site	Ellen Brook (15)	SW021, SW022, SW024, SW025, SW026, SW028, SW029, SW042, SW037, SW038, SW047, SW048, SW049, SW050, SW052
	Ki-it Monger Brook (6)	SW032, SW034, SW035, SW036, SW044, SW046
	West Bullsbrook (6)	SW053, SW055, SW057, SW058, SW059, SW060
	Twin Swamps Nature Reserve (2)	SW066, SW067

2.3 Sediment Monitoring

Sampling of selected sediment monitoring locations was performed in accordance with the SAQP, applying methods set out in section 3.3 of this report. The sediment locations monitored as part of the OMP are presented in Table 2-3, and are shown on Figure 4, Appendix A.

Table 2-3 Sediment Monitoring Locations

Monitoring Area		Location ID
On-Site	Site drainage channels (6)	SD002, SD007, SD013, SD015, SD018, SD020
Off-Site	Ellen Brook (9)	SD021, SD022, SD024, SD025, SD026, SD028, SD029, SD049, SD050
	Ki-it Monger Brook (6)	SD032, SD034, SD035, SD036, SD044, SD046, SD047, SD048
	West Bullsbrook (4)	SD053, SD055, SD058, SD060
	Twin Swamps Nature Reserve (2)	SD061, SD062

2.4 Data Management

All the data included in this report has been collected, uploaded to the Esdat database and reviewed according to the data management requirements of the *Defence Contamination Management Manual* (DCMM) Annex L (Defence, 2021) including:

- The sample naming convention detailed in the DCMM Annex L was used in the field.
- All field data collected was uploaded;
- Laboratory data was uploaded and approved; and
- Quality Assurance and Quality Control (QA/QC) data was reconciled.

2.5 Deviations from the OMP SAQP

Deviations from the SAQP for the post-winter 2023 monitoring event are presented in Table 2-4.

Table 2-4 Summary of deviations from the OMP SAQP

Location	Deviation	Comments
SW002, SW004, SW005, SW007	Not sampled	These surface water locations were found dry. Medium impact on the OMP – These locations were not sampled for surface water for this event (most are regularly found dry). Sediment samples were collected where required, in accordance with the SAQP.
SD047 and SD048	Sampled	These locations are not in the OMP SAQP (surface water monitoring locations only) and were sampled for sediment during post-winter 2023. Positive impact on the OMP, additional analytical information obtained.
MW102	Only sampled for PFAS, no field parameters taken	Casing partially blocked, insufficient water for non-PFAS analytes and physicochemical parameters. No impact – sampled for PFAS, non-PFAS analytes and physicochemical parameters do not drive risk-based decisions/management.
MW113	Standing water level (SWL) not recorded	No impact, nearby wells' groundwater levels will be used to infer GW contours and flow direction.
POT018	Not Sampled	Owner withdrew consent to be part of the OMP. Medium impact, the property is one of a few sampled south of the site.
POT089	Not Sampled	Unable to reach the property owner. Medium impact, this location has reported increasing Sum of PFOS and PFHxS concentrations since the start of the monitoring.
POT125	Not Sampled	Property is not occupied, and power has been turned off. Medium impact, other properties nearby were sampled and sufficient data has been collected for trend analysis. However, this property has reported increased concentrations above the Drinking Water criteria since 2020.

3 Methodology

3.1 Groundwater Monitoring Methodology

3.1.1 Groundwater Monitoring wells

Groundwater monitoring was undertaken by no purge HydraSleeve® method as detailed in Table 3-1.

Table 3-1 Groundwater Monitoring Method

Activity	Details
Well Gauging	Standing Water Level (SWL) were gauged using an interface probe. All wells were measured against a surveyed mark at the top of the well casing.
Groundwater Physicochemical Parameters	Groundwater physicochemical parameters were recorded via a water quality meter from HydraSleeves® or hand-bailed water. The following physicochemical parameters were recorded: ▪ pH. ▪ electrical conductivity (EC). ▪ oxidation reduction potential (ORP). ▪ Dissolved oxygen (DO). ▪ Temperature. Once physicochemical parameters had stabilised (as indicated by at least three consecutive measurements falling within +/- 10% of each other) measurements were recorded on field data records. All field instruments (e.g. water quality meter) were calibrated by the equipment supplier to optimise the accuracy of the measurements taken. Calibration certificates are provided in Appendix D.
Deployment of HydraSleeves®	HydraSleeves® were deployed with top weight sample collection to begin at the lowest point.
Retrieval of HydraSleeves® (Sample Collection)	HydraSleeves® sampling devices were left in wells for a minimum of 24 hours to allow restabilisation of the well following the slight disturbance caused by sampler deployment. Samples were collected via continuous pull method at a rate allowing the water to pass through the check value into the sample sleeve. Samples were discharged immediately (minimise changes in chemistry) via discharge tube. Following sampling, HydraSleeves® were deployed in preparation for the next OMP monitoring event using the same string for consistency between events (same depth of sampling i.e. within screen).
Hand bailing (alternative sampling method)	Disposable HDPE hand bailers, attached to a polypropylene string, were used at wells where the water column wasn't sufficient to fill the HydraSleeve®. Purging of the well was undertaken prior to sampling to make sure that a sample representative of the aquifer is taken (i.e. removal of 3x well volume).
Decontamination procedure	Dedicated HydraSleeves® were used at each groundwater bore thus removing the need for decontamination. All re-usable sampling equipment was thoroughly washed using PFAS & phosphate-free detergent, then double rinsed with clean water before the sample collection.
Sample identification, preservation transport and holding times	Each sample container was pre-labelled by the laboratory with a unique barcode which was scanned into a mobile application to generate the Chain of Custody (CoC). Samples were collected directly into appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under CoC documentation. Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998).

Activity	Details
Laboratory Testing	Groundwater samples were submitted for the following analysis: ▪ Full PFAS analytical suite (refer to the SAQP for full list of analytes). ▪ Major anions and cations (include calcium, magnesium, sodium, potassium, chloride, sulfate, alkalinity and ionic balance). The primary laboratory was ALS Global Laboratories (Perth), and the secondary laboratory (quality control) was Eurofins (Perth). Both laboratories are NATA-accredited for the parameters tested. Copies of the NATA stamped laboratory reports and CoC documentation are included in Appendix C.

3.1.2 Private Bores

Groundwater samples from off-site private bores were collected via the 'first flush' sampling method (GHD 2019b). The primary objective of the 'first flush' sampling method is to *"collect groundwater representative of that used by the resident who may not purge the water line before water use."*

The 'first flush' sampling method involves collecting the first draw of water typically from the closest outlet to the bore, often from the bore outlet tap. Physicochemical parameters (pH, temperature, EC, ORP and DO) were recorded post sampling collection using a calibrated water quality meter. Samples were submitted to the laboratory for the full PFAS analytical suite (refer to the SAQP for full list of analytes).

3.2 Surface Water Monitoring Methodology

Surface water monitoring procedure is detailed in Table 3-2.

Table 3-2 Surface water Monitoring Method

Activity	Details
Physicochemical parameters	The following physicochemical parameters were recorded using a water quality meter: ▪ pH. ▪ EC. ▪ ORP. ▪ DO. ▪ Temperature. Field observations such as water flow, odours or sheen presence were also recorded on field sampling sheets.
Sampling Method	Surface water samples were collected directly into sample containers using a 'Grab' (manual) sample method via a long-handled sampling device. Where depth permits (i.e. sufficient water body depth), the sample container was positioned at least 10 cm below the surface water level and above the sediment bed and oriented with the capped opening facing downwards to avoid the collection of surface films.
Decontamination procedure	All re-usable sampling equipment was thoroughly washed using PFAS & phosphate-free detergent, then double rinsed with clean water before the sample collection.
Sample identification, preservation transport and holding times	Each sample container was pre-labelled by the laboratory with a unique barcode which was scanned into a mobile application to generate the CoC. Samples were collected directly into appropriately preserved laboratory supplied bottles (Teflon-free) and packed in chilled containers for delivery to the laboratory under CoC documentation. Sample containers, preservation procedures, sample storage requirements and holding times were undertaken in accordance with those recommended by Standards Australia (AS/NZS 5667.1:1998).
Laboratory Testing	Surface water samples were submitted for the following analysis: ▪ Full PFAS analytical suite (refer to the SAQP for full list of analytes). ▪ Major anions and cations (include calcium, magnesium, sodium, potassium, chloride, sulfate, alkalinity and ionic balance).

3.3 Sediment Sampling Methodology

Sediment sampling methodology is detailed in Table 3-3.

Table 3-3 Sediment Sampling Method

Activity	Details
Sample Collection	Sediment samples were collected at the sediment/water interface using hand tools (e.g. trowel) with samples placed directly into appropriately labelled, laboratory supplied sample containers and packed in chilled containers for delivery to the laboratory under CoC documentation. At each sampling location, the sediment sample was visually assessed, and observations (including physical description) recorded on field data sheets.
Field Records	The following information was recorded on the field data sheets: ▪ Sampling time, date, and name of the sampler. ▪ Weather conditions. ▪ Sample Collection method. ▪ Sampling equipment decontamination procedures where non-disposable sampling equipment is utilised.
Decontamination	All re-usable sampling equipment was thoroughly washed using PFAS & phosphate-free detergent, then double rinsed with clean water before the sample collection.
Laboratory Testing	Sediment samples were submitted for the following analysis: ▪ Full PFAS analytical suite (refer to the SAQP for full list of analytes).

3.4 Quality Control / Quality Assurance

A critical aspect of site assessments is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process which includes a review of the following data quality indicators, as described in the SAQP:

> Quality Assurance (QA) documentation.

> Bias.

> Data Representativeness.

> Data Precision & Accuracy.

> Laboratory Performance.

> Data Comparability.

> Data Set Completeness.

A detailed review of these aspects has been undertaken, the results of which are presented in Appendix E.

The QA/QC review concluded that there are no significant systematic errors in the data collection process and therefore, the dataset used for the assessment is considered valid and complete.

3.5 Assessment Criteria

3.5.1 Groundwater

The adopted assessment criteria for groundwater are detailed in Table 3-4.

Table 3-4 Criteria for Groundwater

Exposure Scenario	Adopted Assessment Criteria		Guidance
	PFHxS / PFOS	PFOA	
	µg/L		
Human Health – Drinking Water Quality Guideline	0.07[1]	0.56	HEPA 2020
Human Health – Recreational Water	2[1]	10	NHMRC 2019, HEPA 2020

1. Sum of Per-fluoro-octane Sulfonate (PFOS) and Per-fluoro-hexane Sulphonate (PFHxS)
PFOA: Per-fluoro-octanoic Acid

3.5.2 Surface Water

The adopted assessment criteria for surface water are detailed in Table 3-5.

Table 3-5 Criteria for Surface Water

Exposure Scenario	Adopted Assessment Criteria		Guidance
	PFHxS / PFOS	PFOA	
	µg/L		
Human Health – on-site drainage channels & off-Site – Recreational Use	2[1]	10	NHMRC 2019, HEPA 2020
Human Health – off-site – Drinking Water Quality Guideline	0.07[1]	0.56	HEPA 2020
Ecological – off-site – 95% species protection level	0.13[2]	220	HEPA 2020

1. Sum of PFOS and PFHxS.
2. PFOS only

3.5.3 Sediment

It is noted that there are currently no Australian regulatory endorsed assessment levels for risk posed to ecology or human health by PFAS in sediment. Sediment results have been compared to available historical data for the purpose of this assessment.

4 Field Observations and Results

4.1 General Site Observations

No significant weather event or site activities that could have impacted the monitoring event or results obtained were noted during the post-winter 2023 monitoring event conducted between the 11 and 28 September 2023. Daily maximum temperatures varied between 19.3 and 34.1^{o}C and daily rainfall amount varied between 0 to 28.8mm (14th of September).

4.2 Groundwater

4.2.1 Summary of Field Observations

4.2.1.1 Physicochemical parameters

Stabilised physiochemical parameters, water colour and turbidity observations recorded during the groundwater sampling event are presented in field sampling record sheets, included in Tables D1 and D2, Appendix D. Parameters were generally consistent with the previous monitoring event. Groundwater pH was generally acidic to neutral, water was clear to brown/black in colour and fresh to brackish. Groundwater temperature ranged from 13.3°C to 28.0°C. DO readings indicate aerobic groundwater conditions. There was some sulphur odour noted at several groundwater monitoring wells (MW103, MW122D, MW123S, MW128S, MW136, MW137, MW138) and one private bore (POT019).

4.2.1.2 Groundwater Elevation and Migration

The groundwater elevations ranged between 26.435 mAHD (MW140D) and 44.884 mAHD (MW202). Groundwater gauging data and reduced water levels (RWL) are provided within the field records in Appendix D.

Groundwater flow for both the shallow and the deep portions of the superficial aquifer beneath the site was interpreted to be in a south-westerly direction towards Ellen Brook, consistent with the previous monitoring events. Groundwater inferred elevation contours and flow direction for the post-winter 2023 monitoring event are shown in Figures 5 and 6, Appendix A.

4.2.2 Groundwater Laboratory Results

4.2.2.1 PFAS Analytes

The results of laboratory analysis have been compared against adopted assessment criteria. A summary of results exceeding the adopted criteria is presented in Table 4-1. Laboratory results have also been compared to available historical data. Figure 2 in Appendix A presents the groundwater monitoring locations where a first-time detection of Sum of PFOS and PFHxS or PFOA or a new exceedance of guideline values were reported. The laboratory reports are provided in Appendix C and data assessment tables are provided in Appendix B.

Table 4-1 Summary of Groundwater Results Exceeding Adopted Criteria

Analytes	Locations Exceeding Criteria	Lowest Criteria (µg/L)	Max Conc. (µg/L)	No. Analytical Results[1]	No. Results Above Criteria
PFOA	MW015, MW052, MW053, MW055, MW101, MW202	0.56[2]	5.02 (MW052)	93	6
Sum of PFOS and PFHxS	**Monitoring wells:** MW015, MW052, MW053, MW055, MW101, MW102, MW103, MW105, MW109, MW112, MW113, MW122S, MW123D, MW132D, MW132S, MW134S, MW139, MW146, MW149, MW150, MW155S, MW202, MW218 **Private bores:** POT052, POT092, POT099, POT114, POT116, POT128.	0.07[2]	357.00 (MW052)	93	29

Notes:
1. Non-inclusive of quality control samples
2. Drinking Water Quality Guideline (HEPA, 2020)

Findings are summarised as follows:

On-Site monitoring bores

- MW123D recorded a new exceedance of the Drinking Water guideline for Sum of PFOS (0.46 µg/L recorded)
- No first-time detection above the LOR value for PFOA or the Sum of PFOS and PFHxS was reported for the on-site monitoring wells.

Off-Site monitoring bores

- MW126 recorded a fist-time detection of Sum of PFOS and PFHxS (0.07 µg/L detected)
- No new exceedance of a guideline was reported for the off-site monitoring wells.

Off-Site private bores

- 38 private bores were sampled during the post-winter 2023 monitoring event.
- Six (6) private bores reported an exceedance of the Drinking Water guideline for Sum of PFOS and PFHxS, none of them exceeded the recreational use criteria.
- No first-time detection above the LOR value for PFOA or the Sum of PFOS and PFHxS or new exceedance of a guideline was reported for the private bores.

4.2.2.2 Non-PFAS analytes

Tabulated laboratory results for non-PFAS analytes are provided in Table B1, Appendix B. Results were compared to historical range for each monitoring location. Of the 54 samples analysed from the monitoring wells, the total anions ranged from 2.8 meq/L (MW218) to 116.0 meg/L (MW125S) and the total cations ranged from 3.05 meq/L (MW218) to 113.0 meq/L (MW125S). Non-PFAS analytes concentrations were of the same order of magnitude as previous monitoring events.

4.3 Surface water

4.3.1 Summary of Field Observations

4.3.1.1 Physicochemical parameters

Stabilised physiochemical parameters, water colour and turbidity observations recorded during the surface water sampling program are presented in field sampling records, included in Table D3, Appendix D. Parameters were generally consistent with the previous monitoring event. Surface water pH was slightly acidic to neutral, temperature was 17.8°C on average, water colour was clear to brown and EC readings

generally indicate fresh to brackish conditions. DO readings indicate aerobic surface water conditions. No visual or olfactory evidence of contamination were recorded.

4.3.2 Laboratory Results

4.3.2.1 PFAS Analytes

The results of laboratory analysis have been compared against adopted assessment criteria. Data assessment tables are provided in Appendix B. A summary of results exceeding the adopted criteria is presented in Table 4-2. Laboratory results have also been compared to available historical data. Figure 3 in Appendix A presents the surface water monitoring locations. The laboratory reports are provided in Appendix C.

Table 4-2 Summary of Surface Water Results Exceeding Adopted Criteria

Analytes	Locations Exceeding Criteria	Lowest Criteria (µg/L)	Max Conc. (µg/L)	No. Analytical Results[1]	No. Results Above Criteria
On-Site					
PFOA	-	10[2]	1.01 (SW007)	7	0
Sum of PFOS and PFHxS	SW008, SW010, SW013, SW015, SW018.	2[2]	104 (SW007)	7	5
Off-Site					
PFOA	-	0.56[3]	0.08 (SW022)	29	0
PFOS	SW022, SW025, SW029, SW032, SW034, SW035, SW036, SW037, SW038, SW044.	0.13[4]	1.61 (SW035)	29	10
Sum of PFOS and PFHxS	SW022, SW025, SW028, SW029, SW032, SW034, SW035, SW036, SW037, SW038, SW044, SW046, SW047, SW048, SW049, SW052.	0.07[3]	2.16 (SW035)	29	16

Note:

1. Non-inclusive of quality control samples
2. Recreational Use Guideline (HEPA, 2020)
3. Drinking Water Guideline (HEPA, 2020)
4. Ecological - 95% species protection level (HEPA, 2020)

Findings are summarised as follows:

On-Site Drainage Channels

- Five out of the seven on-site samples collected from the site drainage channels reported exceedances of the Recreational Use criteria (2.0 µg/L) for Sum of PFOS and PFHxS.
- No first-time detection of Sum of PFOS and PFHxS or PFOA or new exceedance of a guideline value was reported for the on-site drainage channels monitoring locations.

Off-Site

- No first-time detection of Sum of PFOS and PFHxS or PFOA or new exceedance of a guideline value was reported for the off-site surface water sampling locations.

4.3.2.2 Non-PFAS analytes

Tabulated laboratory results for non-PFAS analytes are provided in Table B3, Appendix B. Results were compared to historical range for each monitoring location. Of the seven samples taken from on-site drainage channels, the total anions ranged from 2.34 meq/L (SW016) to 4.18 meg/L (SW020) and the total cations ranged from 2.39 meq/L (SW016) to 4.61 meq/L (SW020). Of the 29 samples taken from off-site waterways, the total anions ranged from 0.52 meq/L (SW025) to 20.1 meq/L (SW021) and the total cations ranged from 0.54 meq/L (SW025) to 17.2 meq/L (SW021). Non-PFAS analytes concentrations were of the same order of magnitude as previous monitoring events.

4.4 Sediment

Field observations recorded at the time of sediment sampling are provided in the field records in Appendix D.

4.4.1 Laboratory Results

In the absence of Australian regulatory endorsed assessment levels for risk posed to ecology or human health by PFAS in sediment, laboratory analytical results have been compared to available historical data Figure 4 in Appendix A presents the sediment monitoring locations.

The laboratory reports are provided in Appendix C and a summary of analytical results is provided in Appendix B. Findings are summarised as follows:

- Two out of six samples taken within the site drainage channels (SD013 and SD018) reported PFOA and Sum of PFOS and PFHxS respectively, concentrations below the historical range.
- All nine samples taken within Ellen Brook reported concentrations within historical range.
- All four samples taken within the West Bullsbrook drain reported concentrations within historical range.
- All samples taken within the Twin Swamps Reserve reported concentrations within the historical range.
- No first-time detection of PFOA or Sum of PFOS and PFHxS were recorded for the sediment samples.

4.5 Changes to the Monitoring Network Condition

Monitoring well MW102 was found to have the PVC casing partially blocked with an old (broken) HydraSleeve®.

Private bore POT125's pump is turned off as the property is currently vacant.

The owner of private bore POT018 has requested to no longer be part of the OMP.

No other changes to the monitoring network condition were recorded during the post-winter 2023 monitoring event.

5 Summary and Conclusions

Cardno undertook the post-winter 2023 groundwater, surface water and sediment monitoring event at RAAF Base Pearce as part of the PFAS OMP. Groundwater sampling and testing was undertaken at 55 monitoring wells and 38 private bores. Surface water sampling and testing was undertaken at 36 surface water monitoring locations and sediment sampling and testing at 29 sediment monitoring locations.

Groundwater levels were gauged in all wells before sampling. Groundwater flow for both the shallow and the deep portions of the superficial aquifer beneath the site was interpreted to be in a south-westerly direction towards Ellen Brook, which is consistent with the previous monitoring events.

The groundwater laboratory results reported the following:

- Of the 93 groundwater samples that were tested, PFOA (6 samples), and Sum of PFOS and PFHxS (29 samples) reported concentrations that exceeded adopted assessment criteria.
- MW123D (on-site) recorded a new exceedance of the Drinking Water guideline for Sum of PFOS (0.46 µg/L recorded)
- MW126 (off-site) recorded a fist-time detection of Sum of PFOS and PFHxS (0.07 µg/L detected)
- 38 private bores were sampled during the post-summer 2023 monitoring event.
- Six private bores reported an exceedance of the Drinking Water guideline for Sum of PFOS and PFHxS, none of them exceeded the recreational use criteria.
- No first-time detection above the LOR value for PFOA or the Sum of PFOS and PFHxS or new exceedance of a guideline was reported for the private bores.

The surface water laboratory results reported the following:

- Five out of the seven on-site samples collected from the site drainage channels reported exceedances of the Recreational Use criteria (2.0 µg/L) for Sum of PFOS and PFHxS.
- Of the 29 off-site surface water samples that were tested, PFOS (10 samples) and Sum of PFOS and PFHxS (16 samples) reported concentrations that exceeded adopted assessment criteria.
- No first-time detection of PFOA or Sum of PFOS and PFHxS or new exceedance of guideline values were reported for any surface water monitoring locations.

The sediment laboratory results reported the following:

- Of the 27 sediment samples tested from OMP monitoring locations, two within the site drainage channel reported either PFOA or Sum of PFOS and PFHxS concentration(s) below the historical range for these monitoring locations.

PFAS concentrations were generally within the historical range for all media sampled, with the exceptions reported above.

The following actions should be considered prior to the next monitoring event:

- Monitoring well MW102 should be cleared/unblocked.
- Monitoring locations POT125 and POT018 should be removed from the OMP monitoring network.

The next OMP sampling event for RAAF Base Pearce will be the post-summer 2024 monitoring event scheduled for April 2024. An Ongoing Monitoring Interpretive Report for the October 2022 – September 2023 monitoring period will be prepared.

6 References

General References

1. Australian Standard AS 4482-2005 *Guide to the investigation and sampling of sites with potentially contaminated soils, Part 1 – Non-volatile and semi-volatile compounds*.
2. *Australian and New Zealand Guidelines (ANZG) for fresh and marine water quality*, 2018.
3. *Contaminated Sites Act 2003*, Western Australia.
4. Department of Defence, 2021, *Defence Contamination Management Manual* (DCMM) Annex L Data Management.
5. Department of the Environment and Energy (2017) in the National Greenhouse and Energy Reporting Scheme Measurement Technical Guidelines for the Estimation of Emissions by Facilities in Australia.
6. Department of Water and Environmental Regulation (DWER), 2021, *Assessment and Management of Contaminated Sites*.
7. Department of Water and Environment Regulation (DWER), 2018, Perth Groundwater Atlas, (https://maps.water.wa.gov.au/#/webmap/gwm).
8. The Heads of EPAs Australia and New Zealand (HEPA; 2020) *PFAS National Environmental Management Plan* (NEMP) 2.0, January 2020.
9. *National Environment Protection Council (NEPC), 1999, National Environmental Protection (Assessment of Site Contamination) Measure* (as amended), registered May 2013.
10. National Health and Medical Research Council (NHMRC) (2011 – updated 2022) *National Water Quality Management Strategy - Australian Drinking Water Guidelines 6*, January 2022
11. NHMRC, August 2019, *Guidance on Per and Polyfluoroalkyl Substances (PFAS) in Recreational Water*.
12. Standards Australia/Standards New Zealand (1998) AS5667.1:1998 *Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*.
13. U.S. Environmental Protection Agency (EPA), 2000, *Guidance for the Data Quality Objectives Process (EPA QA/G-4).*
14. USEPA, 2002, *Guidance on Environmental Data Verification and Data Validation (EPA QA/G-8).*

Site Specific References

15. Cardno, August 2023, Reference: DEF19009, *PFAS Ongoing Monitoring Plan Sampling and Analysis Quality Plan (SAQP) RAAF Base Pearce* Rev.8.
16. Cardno, 7 July 2020, *Post Summer 2020 PFAS OMP Biannual Sampling Event Factual Report.*
17. Cardno, 14 August 2020, *PFAS OMP 2020 First Flush Sampling Event Factual Report.*
18. Cardno, 25 January 2021, *PFAS OMP Biannual Sampling Event Factual Report – Post-winter 2020.*
19. Cardno, 28 June 2021, *PFAS OMP Biannual Sampling Event Factual Report – Post-summer 2020.*
20. Cardno, 14 July 2021, *2019 Annual Interpretive Report.*
21. Cardno, 11 August 2021, *2020 Annual Interpretive Report.*
22. Cardno, 8 December 2021, *PFAS OMP Biannual Sampling Event Factual Report – Post-winter 2021.*
23. Cardno, 3 March 2022, *PFAS OMP 2021 First Flush Sampling Event Factual Report.*
24. Cardno, now Stantec, 8 September 2022, *PFAS OMP Biannual Sampling Event Factual Report – Post-summer 2022.*
25. Cardno, now Stantec, 23 September 2022, *PFAS OMP 2022 First Flush Sampling Event Factual Report.*
26. Cardno, now Stantec, 4 October 2022, *DRAFT 2021 Annual Interpretive Report.*
27. Cardno, now Stantec, 21 December 2022, *PFAS OMP Biannual Sampling Event Factual Report – Post-winter 2022.*
28. Cardno, now Stantec, 26 May 2023, *PFAS OMP Biannual Sampling Event Factual Report – Post-summer 2023.*
29. Cardno, now Stantec, 28 August 2023, *PFAS OMP First Flush 2023 Sampling Event Factual Report.*
30. GHD Pty Ltd, July 2018, reference: 61/33334, *RAAF Base Pearce Consolidated Detailed Site Investigation Report* (GHD 2018a).

31. GHD Pty Ltd, July 2018, reference: 61/33334, *RAAF Base Pearce PFAS Investigation Human Health Risk Assessment Consolidated Report* (GHD 2018b).
32. GHD Pty Ltd, July 2018, reference: 61/33334, *RAAF Base Pearce PFAS Investigation Groundwater Modelling Report* (GHD 2018c).
33. GHD Pty Ltd, December 2018, reference: 61/3334, *RAAF Base Pearce PFAS Investigation Ecological Risk Assessment* (GHD 2018d).
34. GHD Pty Ltd, April 2019, reference: 61/33334, *RAAF Base Pearce PFAS Investigation Off-Site Bore Sampling Factual Report* (GHD 2019a).
35. GHD Pty Ltd, July 2019, reference: 61/33334/52, *RAAF Base Pearce PFAS Investigation PFAS Ongoing Monitoring Plan* (GHD 2019b).
36. GHD Pty ltd, July 2019, reference: 61/33334, *RAAF Base Pearce PFAS Investigation PFAS Ongoing Monitoring Plan, 2019 Post-Summer Factual Report* (GHD 2019c).

APPENDIX

A

FIGURES

Cardno

now

Stantec

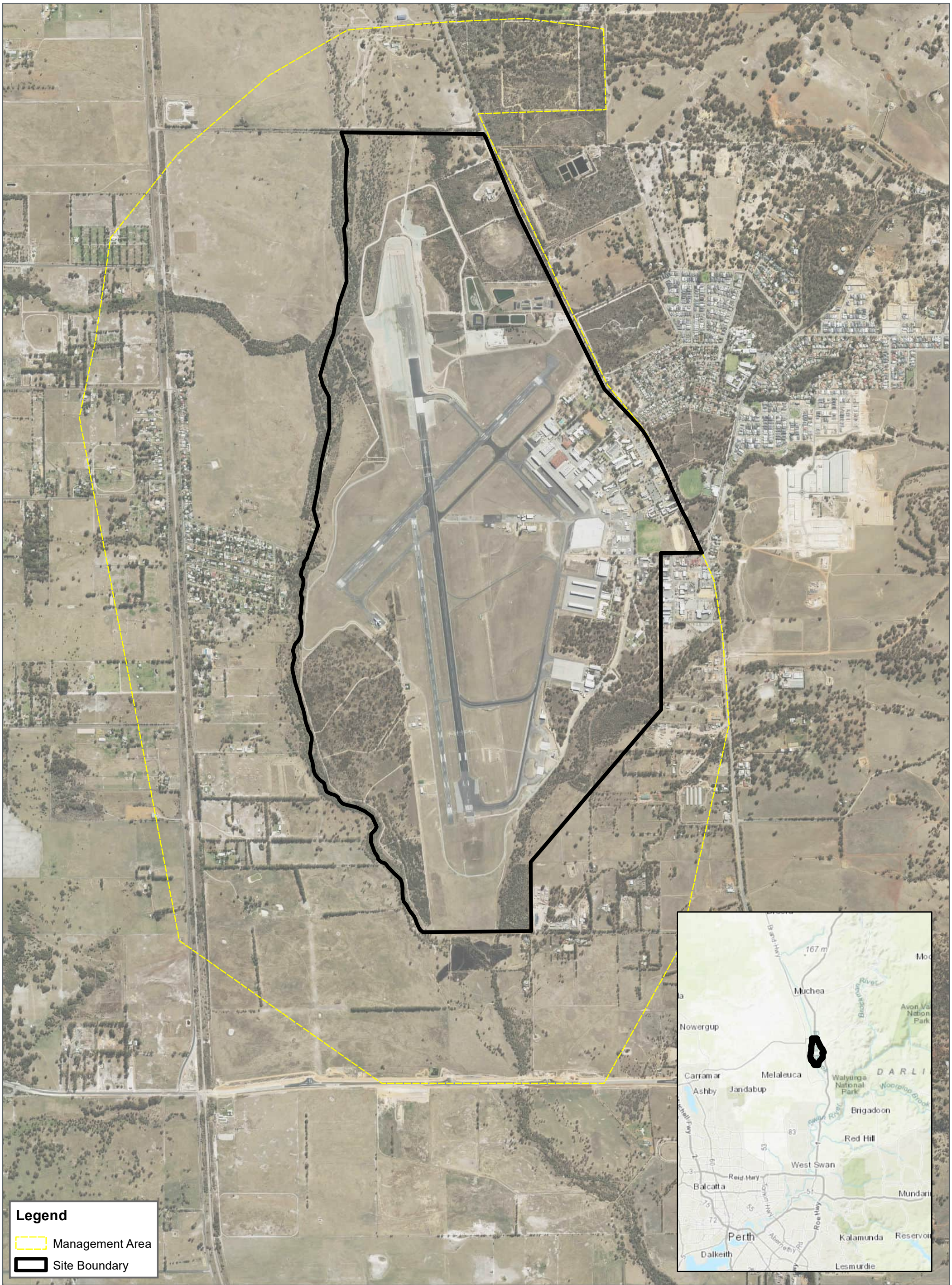


FIGURE 1

1:20,000 Scale at A3

Meters

0 250 500

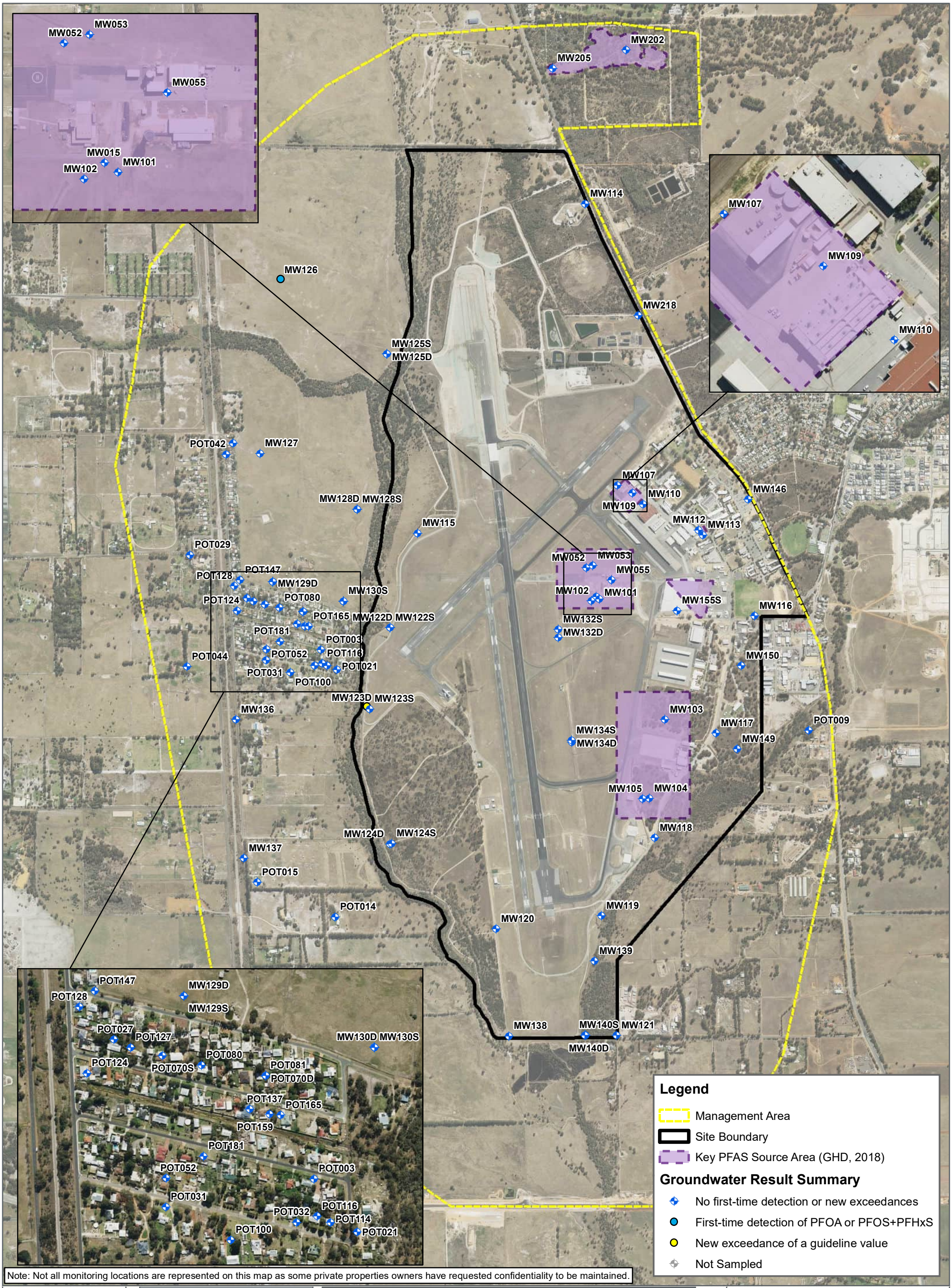
Site Location

POST-WINTER 2023 MONITORING EVENT
RAAF BASE PEARCE
DEPARTMENT OF DEFENCE

N

Cardno

Map Produced by Cardno WA
Date: 2023-10-13 | Project: DEF19009
Coordinate System: GDA 1994 MGA Zone 50
Map: DEF19009_WA_0967-GS-001_RegionalLocation 03.mxd
Aerial Imagery Supplied by Aerometrex



Note: Not all monitoring locations are represented on this map as some private properties owners have requested confidentiality to be maintained.

FIGURE 2

1:18,000 Scale at A3

Meters

0 250 500

Groundwater Monitoring Locations & Results

POST-WINTER 2023 MONITORING EVENT
RAAF BASE PEARCE
DEPARTMENT OF DEFENCE

Cardno

Map Produced by Cardno WA
Date: 2023-10-13 | Project: DEF19009
Coordinate System: GDA 1994 MGA Zone 50
Map: DEF19009_WA_0967-GS-002_GroundwaterResultsSept23 01.mxd
Aerial Imagery Supplied by Aerometrex

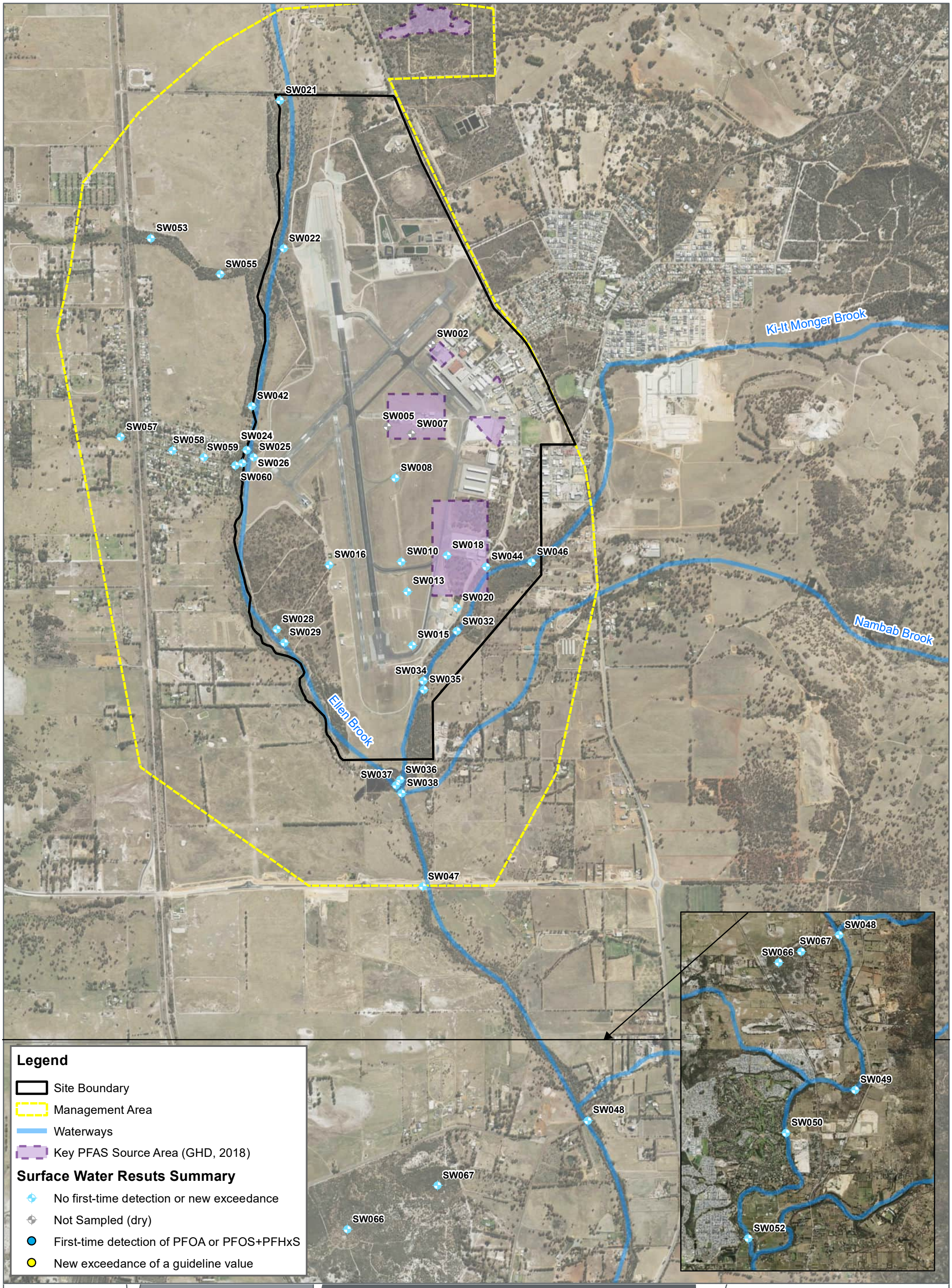


FIGURE 3

1:24,000 Scale at A3

Meters

0 500 1,000

Surface water Monitoring Locations & Results

POST-WINTER 2023 MONITORING EVENT
RAAF BASE PEARCE
DEPARTMENT OF DEFENCE

Cardno

Map Produced by Cardno WA
Date: 2023-10-13 | Project: DEF19009
Coordinate System: GDA 1994 MGA Zone 50
Map: DEF19009_WA_0967-GS-003_SurfacewaterResults Sept23-01.mxd
Aerial Imagery Supplied by Aerometrex

SD021
SD053
SD022
SD055
SD002
SD007
SD058
SD024
SD025
SD060
SD026
SD018
SD044
SD046
SD013
SD020
SD028
SD032
SD029
SD015
SD034
SD035
SD036
SD047
SD048
SD062
SD061
SD049
SD050
Ki-It Monger Brook
Nambab Brook
Ellen Brook

Legend

- Site Boundary
- Management Area
- Waterways
- Key PFAS Source Area (GHD, 2018)

Sediment Results Summary

- No first-time detection
- First-time detection of PFOA or PFOS+PFHxS

FIGURE 4

1:24,000 Scale at A3

Meters

0 500 1,000

Sediment Monitoring Locations & Results

POST-WINTER 2023 MONITORING EVENT
RAAF BASE PEARCE
DEPARTMENT OF DEFENCE

Cardno

Map Produced by Cardno WA
Date: 2023-10-16 | Project: DEF19009
Coordinate System: GDA 1994 MGA Zone 50
Map: DEF19009_WA_0967-GS-004_SDResultsSep23- 01.mxd
Aerial Imagery Supplied by Aerometrex

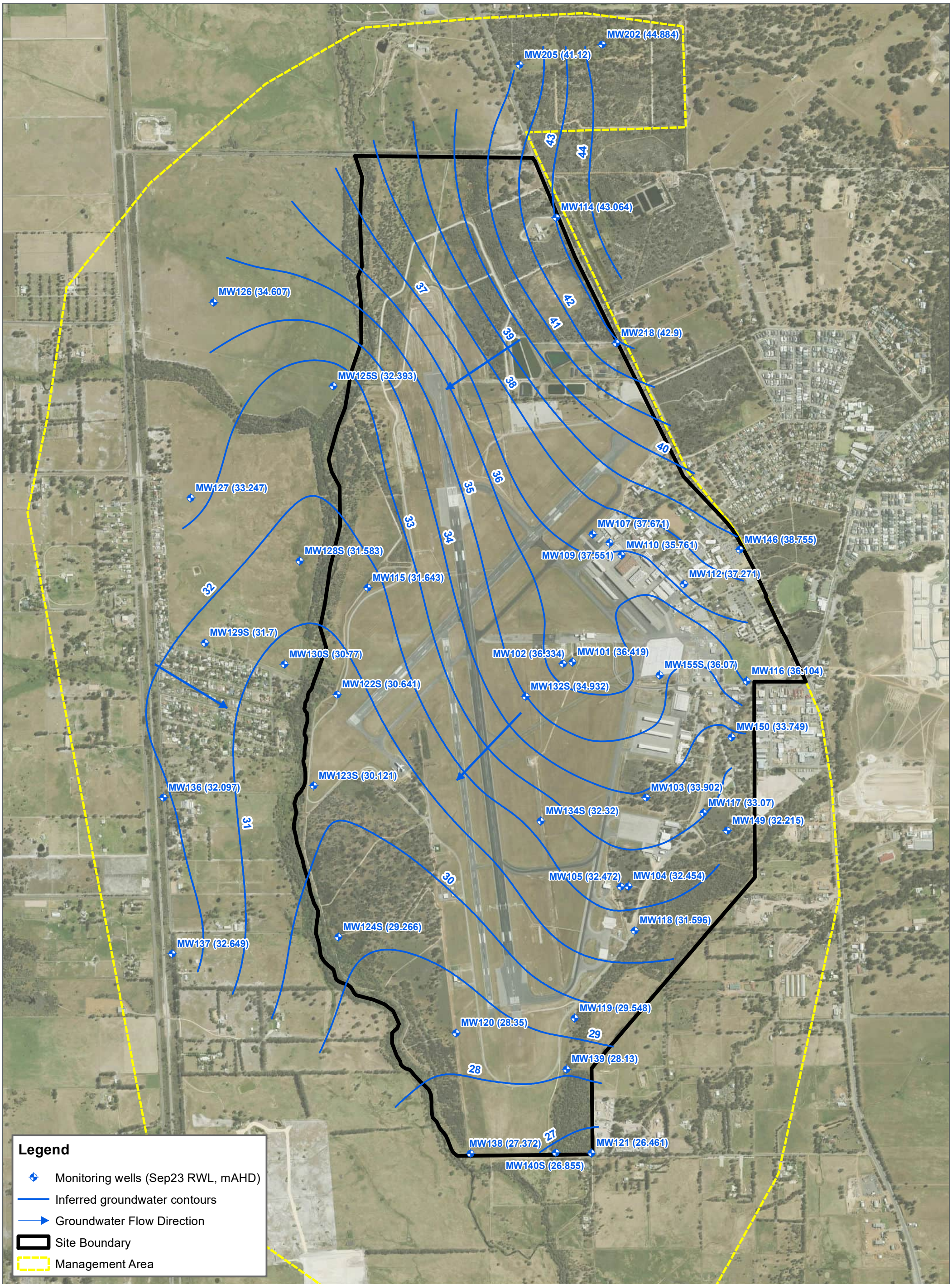


FIGURE 5

1:16,000Scale at A3

Meters

0 250 500

Inferred Groundwater Contours

POST-WINTER 2023 MONITORING EVENT
RAAF BASE PEARCE
DEPARTMENT OF DEFENCE

N

Cardno

Map Produced by Cardno WA
Date: 2023-12-08 | Project: DEF19009
Coordinate System: GDA 1994 MGA Zone 50
Map: DEF19009_WA_0967-GS-005_Sep23_ShallowGWContours 01.mxd
Aerial Imagery Supplied by Aerometrex

APPENDIX

B

DATA ASSESSMENT TABLES

Cardno

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	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids					
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.02	0.05
PFAS NEMP 2020 Drinking Water											*0.56*													
PFAS NEMP 2020 Recreational Water											**10**													

Monitoring Area	Location Code	Date	Field ID	Sample Type	Lab Report Number																					
0967	MW015	25/09/2023	0967_MW015_230925	Normal	EP2313263	2.22	2.14	21.5	4.24	83.2	<0.02	0.8	1.22	8.21	0.69	*1.82*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW052	25/09/2023	0967_MW052_230925	Normal	EP2313263	10.4	9.13	90.2	2.80	267	<0.50	5.6	4.28	29.8	2.26	*5.02*	<0.50	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	<0.05
0967	MW053	25/09/2023	0967_MW053_230925	Normal	EP2313263	3.16	2.64	30.3	4.26	36.7	<0.02	1.3	1.44	7.85	0.55	*1.40*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW055	25/09/2023	0967_MW055_230925	Normal	EP2313263	0.76	0.95	8.17	1.35	14.5	0.02	0.2	0.30	1.60	0.22	*0.59*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05
0967	MW101	25/09/2023	0967_MW101_230925	Normal	EP2313263	9.18	12.2	123	4.44	109	<0.02	2.4	3.80	20.9	2.05	*9.75*	0.23	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05
0967	MW102	25/09/2023	0967_MW102_230925	Normal	EP2313263	0.31	0.38	1.90	0.08	1.71	<0.02	0.1	0.09	0.58	0.06	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW103	25/09/2023	0967_MW103_230925	Normal	EP2313263	<0.02	<0.02	0.09	<0.02	0.10	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW104	25/09/2023	0967_MW104_230925	Normal	EP2313263	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW105	25/09/2023	0967_MW105_230925	Normal	EP2313263	<0.02	<0.02	0.08	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW107	25/09/2023	0967_MW107_230925	Normal	EP2313263	<0.02	0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW109	25/09/2023	0967_MW109_230925	Normal	EP2313263	0.04	0.06	0.40	<0.02	0.26	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW110	25/09/2023	0967_MW110_230925	Normal	EP2313263	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW112	13/09/2023	0967_MW112_230913	Normal	EP2312633	<0.02	<0.02	0.06	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW112	13/09/2023	0967_QC107_230913	Field Duplicate	EP2312633	<0.02	<0.02	0.06	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW112	13/09/2023	0967_QC207_230911	Interlab Duplicate	1026632	<0.01	<0.01	0.05	<0.01	0.15	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW113	13/09/2023	0967_MW113_230913	Normal	EP2312633	0.05	0.05	0.31	<0.02	0.19	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW113	13/09/2023	0967_QC108_230913	Field Duplicate	EP2312633	0.05	0.05	0.30	<0.02	0.18	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW113	13/09/2023	0967_QC208_230911	Interlab Duplicate	1026632	0.04	0.04	0.28	0.01	0.21	<0.01	<0.05	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW114	14/09/2023	0967_MW114_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW115	13/09/2023	0967_MW115_230913	Normal	EP2312633	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW116	13/09/2023	0967_MW116_230913	Normal	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW117	11/09/2023	0967_MW117_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW118	11/09/2023	0967_MW118_230911	Normal	EP2312521	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW119	11/09/2023	0967_MW119_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW119	11/09/2023	0967_QC104_230911	Field Duplicate	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW119	11/09/2023	0967_QC204_230911	Interlab Duplicate	1026632	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW120	11/09/2023	0967_MW120_230911	Normal	EP2312521	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW120	11/09/2023	0967_QC205_230911	Interlab Duplicate	1026632	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW121	11/09/2023	0967_MW121_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW122D	13/09/2023	0967_MW122D_230913	Normal	EP2312633	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW122S	13/09/2023	0967_MW122S_230913	Normal	EP2312633	0.06	0.10	1.01	0.03	0.05	<0.02	<0.1	<0.02	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW122S	13/09/2023	0967_QC111_230913	Field Duplicate	EP2312633	0.06	0.10	1.04	0.03	0.05	<0.02	<0.1	<0.02	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW122S	13/09/2023	0967_QC211_230911	Interlab Duplicate	1026632	0.06	0.08	0.90	0.02	0.06	<0.01	<0.05	0.02	0.09	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW123D	13/09/2023	0967_MW123D_230913	Normal	EP2312633	0.04	0.03	0.26	<0.02	0.20	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW123S	13/09/2023	0967_MW123S_230913	Normal	EP2312633	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW124D	19/09/2023	0967_MW124D_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW124S	19/09/2023	0967_MW124S_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW125D	14/09/2023	0967_MW125D_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW125S	14/09/2023	0967_MW125S_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW126	14/09/2023	0967_MW126_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW127	15/09/2023	0967_MW127_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW128D	15/09/2023	0967_MW128D_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW128S	15/09/2023	0967_MW128S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW129D	15/09/2023	0967_MW129D_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW129S	15/09/2023	0967_MW129S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW130D	15/09/2023	0967_MW130D_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW130S	15/09/2023	0967_MW130S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW132D	25/09/2023	0967_MW132D_230925	Normal	EP2313263	0.76	0.65	4.18	0.13	0.33	<0.02	0.3	0.24	1.23	0.15	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW132S	25/09/2023	0967_MW132S_230925	Normal	EP2313263	0.07	0.08	0.43	0.02	0.11	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW134D	25/09/2023	0967_MW134D_230925	Normal	EP2313263	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW134S	25/09/2023	0967_MW134S_230925	Normal	EP2313263	<0.02	0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW136	14/09/2023	0967_MW136_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW137	14/09/2023	0967_MW137_230914	Normal	EP2312710	0.13	0.05	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW138	11/09/2023	0967_MW138_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW138	11/09/2023	0967_QC105_230911	Field Duplicate	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW139	11/09/2023	0967_MW139_230911	Normal	EP2312521	0.03	0.02	0.14	<0.02	<0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW140D	11/09/2023	0967_MW140D_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW140S	11/09/2023	0967_MW140S_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW146	13/09/2023	0967_MW146_230913	Normal	EP2312633	<0.02	<0.02	0.08	0.04	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW146	13/09/2023	0967_QC109_230913	Field Duplicate	EP2312633	<0.02	<0.02	0.10	0.05	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW146	13/09/2023	0967_QC209_230911	Interlab Duplicate	1026632	<0.01	<0.01	0.06	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05
0967	MW149	13/09/2023	0967_MW149_230913	Normal	EP2312633	<0.02	<0.02	0.03	<0.02	0.25	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW150	13/09/2023	0967_MW150_230913	Normal	EP2312633	0.14	0.16	1.29	0.07	0.96	<0.02	<0.1	0.03	0.22	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW155S	25/09/2023	0967_MW155S_230925	Normal	EP2313263	0.31	0.28	1.63	0.02	0.06	<0.02	<0.1	0.07	0.44	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW202	19/09/2023	0967_MW202_230919	Normal	EP2312976	16.3	30.9	196	2.20	4.90	<0.02	7.3	12.6	74.0	4.26	*4.38*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW205	19/09/2023	0967_MW205_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
0967	MW218	19/09/2023	0967_MW218_230919	Normal	EP2312976	<0.02	<0.02	0.17	<0.02	0.32	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics							Metals			
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	0.01	0.01	1	0.01	1	1	1	1	1
PFAS NEMP 2020 Drinking Water											*0.07*													
PFAS NEMP 2020 Recreational Water											**2**													
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																			
0967	**MW015**	**25/09/2023**	**0967_MW015_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***105***	120	126	<1	153	6.03	5.71	79	2.74	36	6	12	3	100
0967	**MW052**	**25/09/2023**	**0967_MW052_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***357***	414	427	<1	54	7.38	7.27	197	0.80	36	1	2	2	161
0967	**MW053**	**25/09/2023**	**0967_MW053_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***67.0***	82.7	89.6	<1	43	7.73	7.06	228	4.49	21	8	5	3	142
0967	**MW055**	**25/09/2023**	**0967_MW055_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***22.7***	26.3	28.7	<1	223	5.74	5.44	27	2.65	25	21	7	3	86
0967	**MW101**	**25/09/2023**	**0967_MW101_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***232***	280	297	<1	140	34.8	32.5	977	3.55	216	44	83	10	533
0967	**MW102**	**25/09/2023**	**0967_MW102_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.61***	4.85	5.31								93	248	17	915
0967	**MW103**	**25/09/2023**	**0967_MW103_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.22	0.22	<1	22	44.5	45.2	1,470	0.74	126	58	183	19	615
0967	**MW104**	**25/09/2023**	**0967_MW104_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	3	43.6	44.6	1,470	1.16	100	57	200	19	571
0967	**MW105**	**25/09/2023**	**0967_MW105_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15	<1	38	41.6	41.6	1,390	0.05	79	54	177	15	550
0967	**MW107**	**25/09/2023**	**0967_MW107_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.06	0.08	<1	18	86.1	87.4	2,820	0.72	298	82	278	14	1,380
0967	**MW109**	**25/09/2023**	**0967_MW109_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.86	0.92	<1	2	66.8	69.6	2,230	2.05	187	80	272	11	988
0967	**MW110**	**25/09/2023**	**0967_MW110_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	10	38.4	37.9	1,290	0.68	87	34	107	11	623
0967	**MW112**	**13/09/2023**	**0967_MW112_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19	<1	26	36.9	34.8	1,230	2.88	80	43	114	11	529
0967	**MW112**	**13/09/2023**	**0967_QC107_230913**	**Field Duplicate**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19	<1	16	36.7	35.1	1,230	2.23	82	43	114	11	536
0967	**MW112**	**13/09/2023**	**0967_QC207_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.2*	0.21	0.21											
0967	**MW113**	**13/09/2023**	**0967_MW113_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.61	0.66	<1	99	16.2	13.2	475	10.1	40	25	34	4	209
0967	**MW113**	**13/09/2023**	**0967_QC108_230913**	**Field Duplicate**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.59	0.64	<1	83	18.5	15.2	562	9.60	46	26	42	5	238
0967	**MW113**	**13/09/2023**	**0967_QC208_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.49*	0.58	0.65											
0967	**MW114**	**14/09/2023**	**0967_MW114_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	17	9.44	7.82	307	9.36	21	3	16	7	142
0967	**MW115**	**13/09/2023**	**0967_MW115_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	16	18.6	16.9	596	4.64	70	8	32	3	318
0967	**MW116**	**13/09/2023**	**0967_MW116_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	7	48.4	48.2	1,600	0.16	149	40	134	12	802
0967	**MW117**	**11/09/2023**	**0967_MW117_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	3	45.5	43.8	1,510	1.87	136	32	158	18	661
0967	**MW118**	**11/09/2023**	**0967_MW118_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	<1	43.1	44.7	1,480	1.73	67	38	172	20	646
0967	**MW119**	**11/09/2023**	**0967_MW119_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	14.2	12.2	468	7.68	41	7	25	10	219
0967	**MW119**	**11/09/2023**	**0967_QC104_230911**	**Field Duplicate**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	14.3	12.2	472	7.90	43	7	25	10	220
0967	**MW119**	**11/09/2023**	**0967_QC204_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1											
0967	**MW120**	**11/09/2023**	**0967_MW120_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	<1	73.4	72.6	2,460	0.57	192	76	257	25	1,080
0967	**MW120**	**11/09/2023**	**0967_QC205_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1											
0967	**MW121**	**11/09/2023**	**0967_MW121_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	20	42.6	44.6	1,400	2.33	131	36	112	16	764
0967	**MW122D**	**13/09/2023**	**0967_MW122D_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	343	19.6	17.5	439	5.72	20	47	30	14	284
0967	**MW122S**	**13/09/2023**	**0967_MW122S_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.06*	1.25	1.38	<1	50	18.7	15.6	568	9.03	82	16	43	6	256
0967	**MW122S**	**13/09/2023**	**0967_QC111_230913**	**Field Duplicate**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.09*	1.29	1.42	<1	50	17.7	15.9	534	5.24	78	16	44	6	261
0967	**MW122S**	**13/09/2023**	**0967_QC211_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.96*	1.16	1.27											
0967	**MW123D**	**13/09/2023**	**0967_MW123D_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.46*	0.54	0.57	<1	333	27.0	25.8	700	2.09	27	91	56	12	377
0967	**MW123S**	**13/09/2023**	**0967_MW123S_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	154	59.1	52.3	1,890	6.17	132	70	154	15	821
0967	**MW124D**	**19/09/2023**	**0967_MW124D_230919**	**Normal**	**EP2312976**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	283	30.6	28.3	831	4.00	74	113	62	14	395
0967	**MW124S**	**19/09/2023**	**0967_MW124S_230919**	**Normal**	**EP2312976**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	110	55.3	53.8	1,760	1.42	168	98	154	15	824
0967	**MW125D**	**14/09/2023**	**0967_MW125D_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	103	84.5	80.7	2,770	2.26	205	107	132	40	1,460
0967	**MW125S**	**14/09/2023**	**0967_MW125S_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	248	116	113	3,730	1.37	288	186	262	16	1,880
0967	**MW126**	**14/09/2023**	**0967_MW126_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	164	19.2	16.8	533	6.69	44	40	35	6	271
0967	**MW127**	**15/09/2023**	**0967_MW127_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	276	8.86	8.23	103	3.66	21	22	7	3	149
0967	**MW128D**	**15/09/2023**	**0967_MW128D_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	48	6.79	5.62	200	9.40	9	58	<1	8	58
0967	**MW128S**	**15/09/2023**	**0967_MW128S_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	152	6.46	5.80	117	5.42	6	45	8	6	63
0967	**MW129D**	**15/09/2023**	**0967_MW129D_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	255	14.7	13.1	332	5.77	11	83	19	8	165
0967	**MW129S**	**15/09/2023**	**0967_MW129S_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	231	13.6	11.8	306	6.71	15	92	16	8	132
0967	**MW130D**	**15/09/2023**	**0967_MW130D_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	173	7.56	7.18	141	2.56	6	44	10	8	91
0967	**MW130S**	**15/09/2023**	**0967_MW130S_230915**	**Normal**	**EP2312799**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	222	13.1	11.2	299	7.74	13	58	22	6	147
0967	**MW132D**	**25/09/2023**	**0967_MW132D_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.51***	7.48	8.26	<1	216	22.0	19.9	620	5.09	9	79	62	30	231
0967	**MW132S**	**25/09/2023**	**0967_MW132S_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.54*	0.72	0.82	<1	5	47.3	49.5	1,610	2.34	84	73	209	16	650
0967	**MW134D**	**25/09/2023**	**0967_MW134D_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	120	12.2	10.3	343	8.41	8	6	13	14	198
0967	**MW134S**	**25/09/2023**	**0967_MW134S_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.12	<1	6	57.3	58.9	1,940	1.35	118	72	248	23	788
0967	**MW136**	**14/09/2023**	**0967_MW136_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	235	15.6	13.4	367	7.92	29	90	22	7	158
0967	**MW137**	**14/09/2023**	**0967_MW137_230914**	**Normal**	**EP2312710**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.17	0.22	<1	625	67.0	63.1	1,720	2.95	286	142	149	11	1,000
0967	**MW138**	**11/09/2023**	**0967_MW138_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	233	37.9	37.0	1,120	1.21	81	134	86	20	523
0967	**MW138**	**11/09/2023**	**0967_QC105_230911**	**Field Duplicate**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	239	38.5	37.0	1,120	2.06	104	134	86	20	522
0967	**MW139**	**11/09/2023**	**0967_MW139_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.19	0.21	<1	<1	24.9	22.4	830	5.37	72	14	57	11	384
0967	**MW140D**	**11/09/2023**	**0967_MW140D_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	401	26.6	23.0	626	7.25	46	10	4	67	471
0967	**MW140S**	**11/09/2023**	**0967_MW140S_230911**	**Normal**	**EP2312521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	4	29.2	28.0	973	2.16	82	18	63	15	495
0967	**MW146**	**13/09/2023**	**0967_MW146_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.13	<1	16	38.2	35.8	1,280	3.36	88	40	79	5	624
0967	**MW146**	**13/09/2023**	**0967_QC109_230913**	**Field Duplicate**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.17	<1	26	36.6	34.8	1,210	2.42	93	39	77	5	608
0967	**MW146**	**13/09/2023**	**0967_QC209_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.07	<0.1											
0967	**MW149**	**13/09/2023**	**0967_MW149_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.28	0.28	<1	51	42.3	41.7	1,390	0.67	98	38	146	17	629
0967	**MW150**	**13/09/2023**	**0967_MW150_230913**	**Normal**	**EP2312633**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.25***	2.71	2.94	<1	123	22.4	18.8	621	8.80	117	42	28	8	326
0967	**MW155S**	**25/09/2023**	**0967_MW155S_230925**	**Normal**	**EP2313263**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.69*	2.59	2.89	<1	15	67.5	66.4	2,210	0.85	234	75	247	23	959
0967	**MW202**	**19/09/2023**	**0967_MW202_230919**	**Normal**	**EP2312976**	<0.02	<0.05	<0.05	<0.02	<0.05	***201***	320	353	<1	148	16.5	18.2	269	4.83	285	39	103	13	170
0967	**MW205**	**19/09/2023**	**0967_MW205_230919**	**Normal**	**EP2312976**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	120	30.3	29.3	988	1.65	2	17	83	30	480
0967	**MW218**	**19/09/2023**	**0967_MW218_230919**	**Normal**	**EP2312976**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.49*	0.49	0.49	<1	66	2.80	3.05	34	4.30	25	5	2	1	60

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*																		*0.07*		
PFAS NEMP 2020 Recreational Water																**10**																		**2**		
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																															
	POT003	**15/09/2023**	**0967_POT003_230915**	**Normal**	**EP2312802**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
	POT009	**22/09/2023**	**0967_POT009_230922**	**Normal**	**EP2313224**	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
	POT014	**18/09/2023**	**0967_POT014_230918**	**Normal**	**EP2313011**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT015	**14/09/2023**	**0967_POT015_230914**	**Normal**	**EP2312720**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT015	**14/09/2023**	**0967_QC115_230914**	**Field Duplicate**	**EP2312720**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT015	**14/09/2023**	**0967_QC215_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
	POT019	**18/09/2023**	**0967_POT019_230918**	**Normal**	**EP2312967**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT020	**18/09/2023**	**0967_POT020_230918**	**Normal**	**EP2312968**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT021	**18/09/2023**	**0967_POT021_230918**	**Normal**	**EP2312954**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT027	**18/09/2023**	**0967_POT027_230918**	**Normal**	**EP2312955**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
	POT029	**22/09/2023**	**0967_POT029_230922**	**Normal**	**EP2313225**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT030	**22/09/2023**	**0967_POT030_230922**	**Normal**	**EP2313217**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
	POT031	**19/09/2023**	**0967_POT031_230919**	**Normal**	**EP2312973**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
	POT032	**14/09/2023**	**0967_POT032_230914**	**Normal**	**EP2312719**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT032	**14/09/2023**	**0967_QC113_230914**	**Field Duplicate**	**EP2312719**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT032	**14/09/2023**	**0967_QC213_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
	POT040	**22/09/2023**	**0967_POT040_230922**	**Normal**	**EP2313223**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT042	**22/09/2023**	**0967_POT042_230922**	**Normal**	**EP2313222**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
	POT044	**22/09/2023**	**0967_POT044_230922**	**Normal**	**EP2313226**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT052	**19/09/2023**	**0967_POT052_230919**	**Normal**	**EP2312974**	<0.02	<0.02	0.15	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17
	POT070D	**18/09/2023**	**0967_POT070D_230918**	**Normal**	**EP2312964**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT070S	**18/09/2023**	**0967_POT070S_230918**	**Normal**	**EP2312964**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
	POT073	**19/09/2023**	**0967_POT073_230919**	**Normal**	**EP2312975**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT076	**22/09/2023**	**0967_POT076_230922**	**Normal**	**EP2313215**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT080	**18/09/2023**	**0967_POT080_230918**	**Normal**	**EP2312960**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT081	**18/09/2023**	**0967_POT081_230918**	**Normal**	**EP2312961**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
	POT086	**27/09/2023**	**0967_POT086_230927**	**Normal**	**EP2313502**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT092	**22/09/2023**	**0967_POT092_230922**	**Normal**	**EP2313219**	0.02	0.02	0.13	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.24	0.26
	POT099	**19/09/2023**	**0967_POT099_230919**	**Normal**	**EP2312972**	<0.02	<0.02	0.11	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14
	POT100	**14/09/2023**	**0967_POT100_230914**	**Normal**	**EP2312715**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
	POT114	**19/09/2023**	**0967_POT114_230919**	**Normal**	**EP2312970**	0.03	0.02	0.11	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.14	0.16
	POT116	**14/09/2023**	**0967_POT116_230914**	**Normal**	**EP2312718**	0.09	0.09	0.55	<0.02	0.12	<0.02	<0.1	0.02	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.67*	0.91	1.00
	POT124	**19/09/2023**	**0967_POT124_230919**	**Normal**	**EP2312971**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
	POT127	**18/09/2023**	**0967_POT127_230918**	**Normal**	**EP2312959**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
	POT128	**22/09/2023**	**0967_POT128_230922**	**Normal**	**EP2313216**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
	POT136	**18/09/2023**	**0967_POT136_230918**	**Normal**	**EP2312956**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
	POT137	**22/09/2023**	**0967_POT137_230922**	**Normal**	**EP2313220**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT147	**14/09/2023**	**0967_POT147_230914**	**Normal**	**EP2312717**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
	POT147	**14/09/2023**	**0967_QC112_230914**	**Field Duplicate**	**EP2312717**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
	POT155	**18/09/2023**	**0967_POT155_230918**	**Normal**	**EP2312957**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT159	**15/09/2023**	**0967_POT159_230915**	**Normal**	**EP2312803**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.04	0.04
	POT165	**18/09/2023**	**0967_POT165_230918**	**Normal**	**EP2312963**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT181	**15/09/2023**	**0967_POT181_230915**	**Normal**	**EP2312801**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
	POT181	**15/09/2023**	**0967_QC117_230915**	**Field Duplicate**	**EP2312801**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
	POT181	**15/09/2023**	**0967_QC217_230915**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.1

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Recreational Water																**10**						
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																	
On-Site - Site Drainage Channels	**SW008**	**25/09/2023**	**0967_SW008_230925**	**Normal**	**EP2313262**	1.51	1.67	15.6	0.77	55.5	<0.04	1.0	1.17	6.12	0.50	1.20	0.04	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW010**	**25/09/2023**	**0967_SW010_230925**	**Normal**	**EP2313262**	2.53	2.78	26.0	1.12	61.0	<0.04	1.8	1.89	7.92	0.82	1.72	0.07	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW013**	**25/09/2023**	**0967_SW013_230925**	**Normal**	**EP2313262**	1.58	1.96	18.3	0.70	38.3	<0.04	1.0	1.08	5.83	0.51	1.13	0.05	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW015**	**25/09/2023**	**0967_SW015_230925**	**Normal**	**EP2313262**	1.26	2.95	14.0	0.93	18.6	0.07	0.7	0.77	4.19	0.35	0.73	0.03	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC106_230911**	**Field Duplicate**	**EP2312522**	<0.02	0.03	0.30	<0.02	0.98	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC206_230911**	**Interlab Duplicate**	**1026632**	0.02	0.02	0.28	0.02	1.2	<0.01	<0.05	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_SW016_230911**	**Normal**	**EP2312522**	0.02	0.02	0.29	<0.02	1.10	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW018**	**25/09/2023**	**0967_SW018_230925**	**Normal**	**EP2313262**	<0.02	0.03	0.47	0.04	2.71	<0.02	<0.1	<0.02	0.07	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC102_230911**	**Field Duplicate**	**EP2312522**	0.04	0.04	0.42	0.03	1.04	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC202_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	0.09	<0.01	0.56	<0.01	<0.05	0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_SW020_230911**	**Normal**	**EP2312522**	0.03	0.04	0.42	0.03	1.01	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
PFAS NEMP 2020 Drinking Water																*0.56*						
PFAS NEMP 2020 Freshwater 95%										0.13						220						
PFAS NEMP 2020 Recreational Water																**10**						
Off-Site - Ellen Brook	**SW021**	**14/09/2023**	**0967_SW021_230914**	**Normal**	**EP2312711**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW022**	**19/09/2023**	**0967_SW022_230919**	**Normal**	**EP2312965**	0.06	0.05	0.41	<0.02	0.61	<0.02	<0.1	0.17	0.19	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW024**	**15/09/2023**	**0967_SW024_230915**	**Normal**	**EP2312794**	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW025**	**13/09/2023**	**0967_SW025_230913**	**Normal**	**EP2312634**	<0.02	<0.02	0.20	<0.02	0.86	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW026**	**14/09/2023**	**0967_SW026_230914**	**Normal**	**EP2312711**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW028**	**19/09/2023**	**0967_SW028_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.10	<0.02	0.09	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW029**	**19/09/2023**	**0967_SW029_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.13	<0.02	0.13	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC103_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.02	0.16	<0.02	0.45	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC203_230911**	**Interlab Duplicate**	**1026632**	0.01	0.01	0.16	0.01	0.61	<0.01	<0.05	0.02	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_SW032_230911**	**Normal**	**EP2312522**	<0.02	<0.02	0.17	<0.02	0.49	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW034**	**11/09/2023**	**0967_SW034_230911**	**Normal**	**EP2312522**	0.06	0.07	0.66	0.03	1.19	<0.02	<0.1	0.03	0.17	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW035**	**11/09/2023**	**0967_SW035_230911**	**Normal**	**EP2312522**	0.06	0.08	0.73	0.03	1.30	<0.02	<0.1	0.04	0.21	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW036**	**18/09/2023**	**0967_SW036_230918**	**Normal**	**EP2312965**	0.04	0.04	0.43	<0.02	0.63	<0.02	<0.1	0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW037**	**18/09/2023**	**0967_SW037_230918**	**Normal**	**EP2312965**	0.04	0.04	0.42	0.02	0.73	<0.02	<0.1	0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW038**	**18/09/2023**	**0967_SW038_230918**	**Normal**	**EP2312965**	0.04	0.04	0.46	0.02	0.83	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW042**	**15/09/2023**	**0967_SW042_230915**	**Normal**	**EP2312794**	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC101_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.02	0.10	<0.02	0.40	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC201_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	0.08	<0.01	0.47	<0.01	<0.05	0.02	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_SW044_230911**	**Normal**	**EP2312522**	<0.02	<0.02	0.09	<0.02	0.42	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW046**	**13/09/2023**	**0967_SW046_230913**	**Normal**	**EP2312634**	<0.02	<0.02	0.01	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW047**	**18/09/2023**	**0967_SW047_230918**	**Normal**	**EP2312965**	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW048**	**18/09/2023**	**0967_SW048_230918**	**Normal**	**EP2312965**	<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW049**	**19/09/2023**	**0967_SW049_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW050**	**18/09/2023**	**0967_SW050_230918**	**Normal**	**EP2312965**	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Ellen Brook	**SW052**	**19/09/2023**	**0967_SW052_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW053**	**14/09/2023**	**0967_SW053_230914**	**Normal**	**EP2312711**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW055**	**14/09/2023**	**0967_SW055_230914**	**Normal**	**EP2312711**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW057**	**15/09/2023**	**0967_SW057_230915**	**Normal**	**EP2312794**	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW058**	**14/09/2023**	**0967_SW058_230914**	**Normal**	**EP2312711**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW059**	**14/09/2023**	**0967_SW059_230914**	**Normal**	**EP2312711**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - West Bullsbrook	**SW060**	**14/09/2023**	**0967_SW060_230914**	**Normal**	**EP2312711**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Twin Swamps NR	**SW066**	**18/09/2023**	**0967_SW066_230918**	**Normal**	**EP2312965**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
Off-Site - Twin Swamps NR	**SW067**	**18/09/2023**	**0967_SW067_230918**	**Normal**	**EP2312965**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides						
						4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.05	0.01	0.01	0.02	0.05	0.02	0.05	0.05	0.02	0.05
PFAS NEMP 2020 Recreational Water																
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**											
On-Site - Site Drainage Channels	**SW008**	**25/09/2023**	**0967_SW008_230925**	**Normal**	**EP2313262**	<0.05	0.09	<0.05	<0.05	0.19	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW010**	**25/09/2023**	**0967_SW010_230925**	**Normal**	**EP2313262**	<0.05	0.15	<0.05	<0.05	0.14	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW013**	**25/09/2023**	**0967_SW013_230925**	**Normal**	**EP2313262**	<0.05	0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW015**	**25/09/2023**	**0967_SW015_230925**	**Normal**	**EP2313262**	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC106_230911**	**Field Duplicate**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC206_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_SW016_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW018**	**25/09/2023**	**0967_SW018_230925**	**Normal**	**EP2313262**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC102_230911**	**Field Duplicate**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC202_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_SW020_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
PFAS NEMP 2020 Drinking Water																
PFAS NEMP 2020 Freshwater 95%																
PFAS NEMP 2020 Recreational Water																
Off-Site - Ellen Brook	**SW021**	**14/09/2023**	**0967_SW021_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW022**	**19/09/2023**	**0967_SW022_230919**	**Normal**	**EP2312965**	<0.05	0.30	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW024**	**15/09/2023**	**0967_SW024_230915**	**Normal**	**EP2312794**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW025**	**13/09/2023**	**0967_SW025_230913**	**Normal**	**EP2312634**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW026**	**14/09/2023**	**0967_SW026_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW028**	**19/09/2023**	**0967_SW028_230919**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW029**	**19/09/2023**	**0967_SW029_230919**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC103_230911**	**Field Duplicate**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC203_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_SW032_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW034**	**11/09/2023**	**0967_SW034_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW035**	**11/09/2023**	**0967_SW035_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW036**	**18/09/2023**	**0967_SW036_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW037**	**18/09/2023**	**0967_SW037_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW038**	**18/09/2023**	**0967_SW038_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW042**	**15/09/2023**	**0967_SW042_230915**	**Normal**	**EP2312794**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC101_230911**	**Field Duplicate**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC201_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_SW044_230911**	**Normal**	**EP2312522**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ki-it Monger Brook	**SW046**	**13/09/2023**	**0967_SW046_230913**	**Normal**	**EP2312634**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW047**	**18/09/2023**	**0967_SW047_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW048**	**18/09/2023**	**0967_SW048_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW049**	**19/09/2023**	**0967_SW049_230919**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW050**	**18/09/2023**	**0967_SW050_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Ellen Brook	**SW052**	**19/09/2023**	**0967_SW052_230919**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW053**	**14/09/2023**	**0967_SW053_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW055**	**14/09/2023**	**0967_SW055_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW057**	**15/09/2023**	**0967_SW057_230915**	**Normal**	**EP2312794**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW058**	**14/09/2023**	**0967_SW058_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW059**	**14/09/2023**	**0967_SW059_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - West Bullsbrook	**SW060**	**14/09/2023**	**0967_SW060_230914**	**Normal**	**EP2312711**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Twin Swamps NR	**SW066**	**18/09/2023**	**0967_SW066_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05
Off-Site - Twin Swamps NR	**SW067**	**18/09/2023**	**0967_SW067_230918**	**Normal**	**EP2312965**	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS			Inorganics								Metals			
						Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.01	0.01	0.01	1	1	0.01	0.01	1	0.01	1	1	1	1	1
PFAS NEMP 2020 Recreational Water						**2**													
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
On-Site - Site Drainage Channels	**SW008**	**25/09/2023**	**0967_SW008_230925**	**Normal**	**EP2313262**	**71.1**	82.7	85.4	<1	86	2.80	2.95	31	2.62	10	20	4	4	35
On-Site - Site Drainage Channels	**SW010**	**25/09/2023**	**0967_SW010_230925**	**Normal**	**EP2313262**	**87.0**	104	108	<1	50	2.35	2.48	39	2.65	12	9	3	5	38
On-Site - Site Drainage Channels	**SW013**	**25/09/2023**	**0967_SW013_230925**	**Normal**	**EP2313262**	**56.6**	67.8	70.5	<1	58	2.43	2.51	37	1.66	11	12	3	4	36
On-Site - Site Drainage Channels	**SW015**	**25/09/2023**	**0967_SW015_230925**	**Normal**	**EP2313262**	**32.6**	40.6	44.6	<1	65	2.50	2.62	36	2.35	9	12	4	5	36
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC106_230911**	**Field Duplicate**	**EP2312522**	1.28	1.34	1.37	<1	78	2.40	2.14	24	5.76	8	16	3	2	24
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_QC206_230911**	**Interlab Duplicate**	**1026632**	1.48	1.55	1.59											
On-Site - Site Drainage Channels	**SW016**	**11/09/2023**	**0967_SW016_230911**	**Normal**	**EP2312522**	1.39	1.47	1.49	<1	74	2.34	2.39	24	0.99	9	21	3	2	24
On-Site - Site Drainage Channels	**SW018**	**25/09/2023**	**0967_SW018_230925**	**Normal**	**EP2313262**	**3.18**	3.28	3.35	<1	170	4.04	4.03	17	0.13	8	32	5	6	43
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC102_230911**	**Field Duplicate**	**EP2312522**	1.46	1.61	1.68	<1	151	4.18	4.22	34	0.49	10	27	5	8	52
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_QC202_230911**	**Interlab Duplicate**	**1026632**	0.65	0.69	0.69											
On-Site - Site Drainage Channels	**SW020**	**11/09/2023**	**0967_SW020_230911**	**Normal**	**EP2312522**	1.43	1.57	1.64	<1	151	4.18	4.61	34	4.81	10	33	6	8	52
PFAS NEMP 2020 Drinking Water						*0.07*													
PFAS NEMP 2020 Freshwater 95%																			
PFAS NEMP 2020 Recreational Water						**2**													
Off-Site - Ellen Brook	**SW021**	**14/09/2023**	**0967_SW021_230914**	**Normal**	**EP2312711**	<0.01	<0.01	<0.01	<1	49	20.1	17.2	634	7.73	60	28	48	12	266
Off-Site - Ellen Brook	**SW022**	**19/09/2023**	**0967_SW022_230919**	**Normal**	**EP2312965**	*1.02*	1.81	1.86	<1	116	10.9	9.66	281	5.86	30	35	23	6	135
Off-Site - Ellen Brook	**SW024**	**15/09/2023**	**0967_SW024_230915**	**Normal**	**EP2312794**	0.02	0.02	0.02	<1	51	17.1	15.2	540	5.81	40	23	41	13	238
Off-Site - Ellen Brook	**SW025**	**13/09/2023**	**0967_SW025_230913**	**Normal**	**EP2312634**	*1.06*	1.10	1.10	<1	12	0.52	0.54	10	1.93	<5	2	<1	2	9
Off-Site - Ellen Brook	**SW026**	**14/09/2023**	**0967_SW026_230914**	**Normal**	**EP2312711**	0.05	0.05	0.05	<1	66	13.6	11.9	405	6.94	43	32	31	11	171
Off-Site - Ellen Brook	**SW028**	**19/09/2023**	**0967_SW028_230919**	**Normal**	**EP2312965**	*0.19*	0.21	0.21	<1	57	16.5	14.9	518	4.96	35	34	41	11	220
Off-Site - Ellen Brook	**SW029**	**19/09/2023**	**0967_SW029_230919**	**Normal**	**EP2312965**	*0.26*	0.29	0.29	<1	57	14.4	12.0	455	9.06	23	33	34	10	169
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC103_230911**	**Field Duplicate**	**EP2312522**	*0.61*	0.66	0.66	<1	112	7.08	6.31	157	5.76	20	23	13	7	90
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_QC203_230911**	**Interlab Duplicate**	**1026632**	*0.77*	0.84	0.86											
Off-Site - Ki-it Monger Brook	**SW032**	**11/09/2023**	**0967_SW032_230911**	**Normal**	**EP2312522**	*0.66*	0.71	0.71	<1	112	7.17	6.49	157	4.92	24	25	14	7	90
Off-Site - Ki-it Monger Brook	**SW034**	**11/09/2023**	**0967_SW034_230911**	**Normal**	**EP2312522**	*1.85*	2.15	2.25	<1	103	6.57	6.00	143	4.55	23	25	12	6	83
Off-Site - Ki-it Monger Brook	**SW035**	**11/09/2023**	**0967_SW035_230911**	**Normal**	**EP2312522**	***2.03***	2.40	2.51	<1	101	6.42	5.95	140	3.85	22	24	12	6	83
Off-Site - Ki-it Monger Brook	**SW036**	**18/09/2023**	**0967_SW036_230918**	**Normal**	**EP2312965**	*1.06*	1.27	1.31	<1	91	9.78	8.95	249	4.45	45	28	20	8	131
Off-Site - Ellen Brook	**SW037**	**18/09/2023**	**0967_SW037_230918**	**Normal**	**EP2312965**	*1.15*	1.36	1.42	<1	92	9.88	8.48	251	7.58	46	27	19	7	124
Off-Site - Ellen Brook	**SW038**	**18/09/2023**	**0967_SW038_230918**	**Normal**	**EP2312965**	*1.29*	1.49	1.55	<1	90	9.76	8.82	249	5.05	45	28	19	8	130
Off-Site - Ellen Brook	**SW042**	**15/09/2023**	**0967_SW042_230915**	**Normal**	**EP2312794**	0.01	0.01	0.01	<1	51	17.4	14.5	553	9.14	40	20	37	12	234
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC101_230911**	**Field Duplicate**	**EP2312522**	*0.50*	0.53	0.53	<1	105	8.59	7.67	205	5.63	34	26	18	6	109
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_QC201_230911**	**Interlab Duplicate**	**1026632**	*0.55*	0.6	0.6											
Off-Site - Ki-it Monger Brook	**SW044**	**11/09/2023**	**0967_SW044_230911**	**Normal**	**EP2312522**	*0.51*	0.55	0.55	<1	104	8.61	8.00	208	3.65	32	31	19	6	109
Off-Site - Ki-it Monger Brook	**SW046**	**13/09/2023**	**0967_SW046_230913**	**Normal**	**EP2312634**	*0.10*	0.10	0.10	<1	89	6.34	5.84	141	4.11	28	21	13	6	82
Off-Site - Ellen Brook	**SW047**	**18/09/2023**	**0967_SW047_230918**	**Normal**	**EP2312965**	*0.08*	0.08	0.08	<1	72	17.9	14.7	555	9.65	38	26	38	12	230
Off-Site - Ellen Brook	**SW048**	**18/09/2023**	**0967_SW048_230918**	**Normal**	**EP2312965**	*0.09*	0.09	0.09	<1	74	17.4	14.3	538	9.70	35	26	36	12	224
Off-Site - Ellen Brook	**SW049**	**19/09/2023**	**0967_SW049_230919**	**Normal**	**EP2312965**	*0.08*	0.08	0.08	<1	74	18.4	16.4	572	5.66	38	33	44	13	249
Off-Site - Ellen Brook	**SW050**	**18/09/2023**	**0967_SW050_230918**	**Normal**	**EP2312965**	*0.08*	0.08	0.08	<1	111	15.4	13.2	437	7.64	42	31	32	12	201
Off-Site - Ellen Brook	**SW052**	**19/09/2023**	**0967_SW052_230919**	**Normal**	**EP2312965**	*0.08*	0.08	0.08	<1	90	14.6	13.5	428	3.89	36	38	34	12	196
Off-Site - West Bullsbrook	**SW053**	**14/09/2023**	**0967_SW053_230914**	**Normal**	**EP2312711**	<0.01	<0.01	<0.01	<1	48	4.37	4.61	118	2.68	4	18	8	14	62
Off-Site - West Bullsbrook	**SW055**	**14/09/2023**	**0967_SW055_230914**	**Normal**	**EP2312711**	<0.01	<0.01	<0.01	<1	52	4.76	4.74	129	0.18	4	19	9	14	62
Off-Site - West Bullsbrook	**SW057**	**15/09/2023**	**0967_SW057_230915**	**Normal**	**EP2312794**	0.06	0.06	0.06	<1	97	6.34	6.09	156	2.03	<1	36	10	8	75
Off-Site - West Bullsbrook	**SW058**	**14/09/2023**	**0967_SW058_230914**	**Normal**	**EP2312711**	0.01	0.01	0.01	<1	101	6.27	6.14	150	1.01	1	39	11	8	71
Off-Site - West Bullsbrook	**SW059**	**14/09/2023**	**0967_SW059_230914**	**Normal**	**EP2312711**	0.01	0.01	0.01	<1	102	6.17	6.15	145	0.16	2	40	11	8	70
Off-Site - West Bullsbrook	**SW060**	**14/09/2023**	**0967_SW060_230914**	**Normal**	**EP2312711**	0.04	0.04	0.04	<1	74	12.3	10.6	356	7.30	39	34	27	10	149
Off-Site - Twin Swamps NR	**SW066**	**18/09/2023**	**0967_SW066_230918**	**Normal**	**EP2312965**	<0.01	<0.01	<0.01	<1	92	8.25	7.24	222	6.50	7	20	15	7	111
Off-Site - Twin Swamps NR	**SW067**	**18/09/2023**	**0967_SW067_230918**	**Normal**	**EP2312965**	<0.01	<0.01	<0.01	<1	111	7.55	6.72	189	5.77	<10	24	15	8	94

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
Notes:
First Time detect of PFOA or PFHxS+PFOS
New exceedance of guideline value

	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0005
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**												
On-site Drainage Channels	**SD002**	**25/09/2023**	**0967_SD002_230925**	**Normal**	**EP2313265**	<0.0002	<0.0002	0.0010	<0.0002	0.0106	0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0004	0.0006	<0.0002	<0.0005
On-site Drainage Channels	**SD007**	**25/09/2023**	**0967_SD007_230925**	**Normal**	**EP2313265**	0.0285	<0.0435	0.321	0.0452	7.02	0.204	0.003	0.0065	0.0479	0.0138	0.0548	0.0017	0.0024	0.0042	0.0254	0.0156	0.0077
On-site Drainage Channels	**SD013**	**25/09/2023**	**0967_SD013_230925**	**Normal**	**EP2313265**	0.0005	0.0008	0.0108	0.0011	0.274	0.0078	<0.001	0.0003	0.0018	<0.0002	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005
On-site Drainage Channels	**SD015**	**25/09/2023**	**0967_SD015_230925**	**Normal**	**EP2313265**	0.0002	0.0003	0.0039	0.0002	0.0182	0.0004	<0.001	<0.0002	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
On-site Drainage Channels	**SD018**	**25/09/2023**	**0967_SD018_230925**	**Normal**	**EP2313265**	<0.0002	<0.0002	0.0003	<0.0002	0.0058	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
On-site Drainage Channels	**SD020**	**11/09/2023**	**0967_SD020_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0004	<0.0002	0.0051	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD021**	**14/09/2023**	**0967_SD021_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD022**	**19/09/2023**	**0967_SD022_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0009	<0.0002	0.0030	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD024**	**15/09/2023**	**0967_SD024_230915**	**Normal**	**EP2312800**	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD025**	**13/09/2023**	**0967_QC110_230913**	**Field Duplicate**	**EP2312635**	<0.0002	<0.0002	0.0017	0.0002	0.0326	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD025**	**13/09/2023**	**0967_QC210_230911**	**Interlab Duplicate**	**1026632**	<0.005	<0.005	0.0098	<0.005	0.066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Off-Site - Ellen Brook	**SD025**	**13/09/2023**	**0967_SD025_230913**	**Normal**	**EP2312635**	<0.0002	<0.0002	0.0040	0.0008	0.0959	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD026**	**14/09/2023**	**0967_SD026_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	0.0005	<0.0002	0.0068	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0012
Off-Site - Ellen Brook	**SD028**	**19/09/2023**	**0967_SD028_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0008	<0.0002	0.0087	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056
Off-Site - Ellen Brook	**SD029**	**19/09/2023**	**0967_SD029_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0005	<0.0002	0.0041	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056
Off-Site - Ki-it Monger Brook	**SD032**	**11/09/2023**	**0967_SD032_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0003	<0.0002	0.0035	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ki-it Monger Brook	**SD034**	**11/09/2023**	**0967_SD034_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0017	<0.0002	0.0411	<0.0003	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0007
Off-Site - Ki-it Monger Brook	**SD035**	**11/09/2023**	**0967_SD035_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0003	<0.0002	0.0069	<0.0002	<0.001	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0007
Off-Site - Ki-it Monger Brook	**SD036**	**18/09/2023**	**0967_SD036_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0007	<0.0002	0.0191	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0006
Off-Site - Ki-it Monger Brook	**SD044**	**11/09/2023**	**0967_SD044_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0002	<0.0002	0.0088	<0.0003	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0007
Off-Site - Ki-it Monger Brook	**SD046**	**13/09/2023**	**0967_SD046_230913**	**Normal**	**EP2312635**	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0009	<0.0009	<0.0009	<0.0006
Off-Site - Ki-it Monger Brook	**SD047***	**18/09/2023**	**0967_SD047_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ki-it Monger Brook	**SD048***	**18/09/2023**	**0967_SD048_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Ellen Brook	**SD049**	**19/09/2023**	**0967_SD049_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006
Off-Site - Ellen Brook	**SD050**	**18/09/2023**	**0967_SD050_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	0.0038	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0024	<0.0024	<0.0024	<0.0006
Off-Site - West Bullsbrook	**SD053**	**14/09/2023**	**0967_QC116_230914**	**Field Duplicate**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006
Off-Site - West Bullsbrook	**SD053**	**14/09/2023**	**0967_SD053_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006
Off-Site - West Bullsbrook	**SD055**	**14/09/2023**	**0967_SD055_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
Off-Site - West Bullsbrook	**SD058**	**14/09/2023**	**0967_QC114_230914**	**Field Duplicate**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - West Bullsbrook	**SD058**	**14/09/2023**	**0967_QC214_230911**	**Interlab Duplicate**	**1026632**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Off-Site - West Bullsbrook	**SD058**	**14/09/2023**	**0967_SD058_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - West Bullsbrook	**SD060**	**14/09/2023**	**0967_SD060_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	0.0003	<0.0002	0.0039	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0012
Off-Site - Twin Swamps	**SD061**	**18/09/2023**	**0967_SD061_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Off-Site - Twin Swamps	**SD062**	**18/09/2023**	**0967_SD062_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0014

Notes:

First-time detection of PFOA or PFHxS+PFOS

* Additionnal sample - not OMP sediment monitoring location

						PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0002	0.0005	0.0002	0.0005	0.0005	0.0002	0.0005	0.0002	0.0002	0.0002
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**														
On-site Drainage Channels	SD002	25/09/2023	0967_SD002_230925	Normal	EP2313265	<0.0005	<0.0005	0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0116	0.0123	0.0137
On-site Drainage Channels	SD007	25/09/2023	0967_SD007_230925	Normal	EP2313265	<0.0005	0.0063	0.0140	0.0017	0.162	0.0018	0.0008	<0.0005	<0.0005	0.0018	<0.0005	7.34	7.52	7.99
On-site Drainage Channels	SD013	25/09/2023	0967_SD013_230925	Normal	EP2313265	<0.0005	<0.0005	<0.0005	<0.0005	0.0023	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.285	0.288	0.300
On-site Drainage Channels	SD015	25/09/2023	0967_SD015_230925	Normal	EP2313265	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0221	0.0234	0.0243
On-site Drainage Channels	SD018	25/09/2023	0967_SD018_230925	Normal	EP2313265	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0061	0.0061
On-site Drainage Channels	SD020	11/09/2023	0967_SD020_230911	Normal	EP2312523	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Off-Site - Ellen Brook	SD021	14/09/2023	0967_SD021_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Off-Site - Ellen Brook	SD022	19/09/2023	0967_SD022_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0039	0.0044	0.0044
Off-Site - Ellen Brook	SD024	15/09/2023	0967_SD024_230915	Normal	EP2312800	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
Off-Site - Ellen Brook	SD025	13/09/2023	0967_QC110_230913	Field Duplicate	EP2312635	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0343	0.0346	0.0348
Off-Site - Ellen Brook	SD025	13/09/2023	0967_QC210_230911	Interlab Duplicate	1026632	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0758	0.0758	0.0758
Off-Site - Ellen Brook	SD025	13/09/2023	0967_SD025_230913	Normal	EP2312635	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0999	0.101	0.102
Off-Site - Ellen Brook	SD026	14/09/2023	0967_SD026_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0005	0.0073	0.0078	0.0078
Off-Site - Ellen Brook	SD028	19/09/2023	0967_SD028_230918	Normal	EP2312966	<0.0005	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056	<0.0022	<0.0056	<0.0056	<0.0022	<0.0056	0.0095	0.0095	0.0095
Off-Site - Ellen Brook	SD029	19/09/2023	0967_SD029_230918	Normal	EP2312966	<0.0005	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056	<0.0022	<0.0056	<0.0056	<0.0022	<0.0006	0.0046	0.0046	0.0046
Off-Site - Ki-it Monger Brook	SD032	11/09/2023	0967_SD032_230911	Normal	EP2312523	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0038	0.0038	0.0038
Off-Site - Ki-it Monger Brook	SD034	11/09/2023	0967_SD034_230911	Normal	EP2312523	<0.0005	<0.0007	<0.0007	<0.0007	<0.0003	<0.0007	<0.0003	<0.0007	<0.0007	<0.0003	<0.0007	0.0428	0.0430	0.0430
Off-Site - Ki-it Monger Brook	SD035	11/09/2023	0967_SD035_230911	Normal	EP2312523	<0.0005	<0.0005	<0.0005	<0.0005	<0.0003	<0.0007	<0.0003	<0.0005	<0.0007	<0.0003	<0.0007	0.0072	0.0078	0.0078
Off-Site - Ki-it Monger Brook	SD036	18/09/2023	0967_SD036_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0022	<0.0022	<0.0002	<0.0055	<0.0022	<0.0006	<0.0006	<0.0022	<0.0006	0.0198	0.0198	0.0198
Off-Site - Ki-it Monger Brook	SD044	11/09/2023	0967_SD044_230911	Normal	EP2312523	<0.0005	<0.0007	<0.0007	<0.0007	<0.0002	<0.0007	<0.0003	<0.0005	<0.0005	<0.0003	<0.0005	0.0090	0.0092	0.0092
Off-Site - Ki-it Monger Brook	SD046	13/09/2023	0967_SD046_230913	Normal	EP2312635	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0006	<0.0009	<0.0006	<0.0006	<0.0009	<0.0005	0.0009	0.0009	0.0009
Off-Site - Ki-it Monger Brook	SD047*	18/09/2023	0967_SD047_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Off-Site - Ki-it Monger Brook	SD048*	18/09/2023	0967_SD048_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Off-Site - Ellen Brook	SD049	19/09/2023	0967_SD049_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0006	<0.0024	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Off-Site - Ellen Brook	SD050	18/09/2023	0967_SD050_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0024	<0.0024	<0.0002	<0.0061	<0.0024	<0.0006	<0.0006	<0.0024	<0.0006	0.0038	0.0038	0.0038
Off-Site - West Bullsbrook	SD053	14/09/2023	0967_QC116_230914	Field Duplicate	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0006	<0.0002	<0.0005	<0.0006	<0.0002	<0.0006	0.0006	0.0006	0.0006
Off-Site - West Bullsbrook	SD053	14/09/2023	0967_SD053_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0006	<0.0002	<0.0005	<0.0006	<0.0002	<0.0005	0.0005	0.0005	0.0005
Off-Site - West Bullsbrook	SD055	14/09/2023	0967_SD055_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	0.0012	0.0012
Off-Site - West Bullsbrook	SD058	14/09/2023	0967_QC114_230914	Field Duplicate	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Off-Site - West Bullsbrook	SD058	14/09/2023	0967_QC214_230911	Interlab Duplicate	1026632	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Off-Site - West Bullsbrook	SD058	14/09/2023	0967_SD058_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Off-Site - West Bullsbrook	SD060	14/09/2023	0967_SD060_230914	Normal	EP2312714	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	0.0042	0.0042	0.0042
Off-Site - Twin Swamps	SD061	18/09/2023	0967_SD061_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Off-Site - Twin Swamps	SD062	18/09/2023	0967_SD062_230918	Normal	EP2312966	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0026	<0.0005	<0.0014	0.0040	<0.0005	<0.0014	<0.0002	<0.0002	0.0066

Notes:

First-time detection of PFOA or PFHxS+PFOS

* Additionnal sample - not OMP sediment monitoring location

	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Date	Field ID	Sample Type	Lab Report Number																
11/09/2023	0967_QC301_230911	Rinsate	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
11/09/2023	0967_QC401_230911	Field Blank	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
13/09/2023	0967_QC301_230913	Rinsate	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
13/09/2023	0967_QC302_230913	Rinsate	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
13/09/2023	0967_QC401_230913	Field Blank	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
13/09/2023	0967_QC402_230913	Field Blank	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
14/09/2023	0967_QC301_230914	Rinsate	EP2312724	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
14/09/2023	0967_QC302_230914	Rinsate	EP2312724	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
14/09/2023	0967_QC401_230914	Field Blank	EP2312724	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
14/09/2023	0967_QC402_230914	Field Blank	EP2312724	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
15/09/2023	0967_QC301_230915	Rinsate	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
15/09/2023	0967_QC302_230915	Rinsate	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
15/09/2023	0967_QC401_230915	Field Blank	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
15/09/2023	0967_QC402_230915	Field Blank	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
18/09/2023	0967_QC301_230918	Rinsate	EP2312965	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
18/09/2023	0967_QC401_230918	Field Blank	EP2312965	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
19/09/2023	0967_QC302_230919	Rinsate	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
19/09/2023	0967_QC402_230919	Field Blank	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
22/09/2023	0967_QC301_230922	Rinsate	EP2313227	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
22/09/2023	0967_QC401_230922	Field Blank	EP2313227	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
25/09/2023	0967_QC301_230925	Rinsate	EP2313262	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
25/09/2023	0967_QC401_230925	Field Blank	EP2313262	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/09/2023	0967_QC301_230928	Rinsate	EP2313504	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05
28/09/2023	0967_QC401_230928	Field Blank	EP2313504	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05

	PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting	0.01	0.05	0.01	0.01	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01
Date	**Field ID**	**Sample Type**	**Lab Report Numbe**											
11/09/2023	0967_QC301_230911	Rinsate	EP2312521	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
11/09/2023	0967_QC401_230911	Field Blank	EP2312521	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/09/2023	0967_QC301_230913	Rinsate	EP2312633	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/09/2023	0967_QC302_230913	Rinsate	EP2312633	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/09/2023	0967_QC401_230913	Field Blank	EP2312633	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
13/09/2023	0967_QC402_230913	Field Blank	EP2312633	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
14/09/2023	0967_QC301_230914	Rinsate	EP2312724	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
14/09/2023	0967_QC302_230914	Rinsate	EP2312724	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
14/09/2023	0967_QC401_230914	Field Blank	EP2312724	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
14/09/2023	0967_QC402_230914	Field Blank	EP2312724	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
15/09/2023	0967_QC301_230915	Rinsate	EP2312799	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
15/09/2023	0967_QC302_230915	Rinsate	EP2312799	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
15/09/2023	0967_QC401_230915	Field Blank	EP2312799	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
15/09/2023	0967_QC402_230915	Field Blank	EP2312799	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
18/09/2023	0967_QC301_230918	Rinsate	EP2312965	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
18/09/2023	0967_QC401_230918	Field Blank	EP2312965	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
19/09/2023	0967_QC302_230919	Rinsate	EP2312976	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
19/09/2023	0967_QC402_230919	Field Blank	EP2312976	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
22/09/2023	0967_QC301_230922	Rinsate	EP2313227	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
22/09/2023	0967_QC401_230922	Field Blank	EP2313227	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
25/09/2023	0967_QC301_230925	Rinsate	EP2313262	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
25/09/2023	0967_QC401_230925	Field Blank	EP2313262	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
28/09/2023	0967_QC301_230928	Rinsate	EP2313504	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
28/09/2023	0967_QC401_230928	Field Blank	EP2313504	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

		Date	11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023	
		Field ID	0967_SW044_230911	0967_QC101_230911		0967_SW044_230911	0967_QC201_230911		0967_SW020_230911	0967_QC102_230911		0967_SW020_230911	0967_QC202_230911	
		Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water	
		Lab Report Number	EP2312522	EP2312522	RPD	EP2312522	1026632	RPD	EP2312522	EP2312522	RPD	EP2312522	1026632	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.03	0.04	29	0.03	<0.01	100
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.04	0.04	0	0.04	<0.01	120
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.09	0.10	11	0.09	0.08	12	0.42	0.42	0	0.42	0.09	**129**
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.03	0.03	0	0.03	<0.01	100
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.42	0.40	5	0.42	0.47	11	1.01	1.04	3	1.01	0.56	**57**
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.02	0	<0.02	<0.02	0	<0.02	0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.03	0.03	0	0.03	0.02	40	0.09	0.09	0	0.09	0.02	127
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.01	<0.01	0	0.01	0.01	0	0.02	0.02	0	0.02	0.01	67
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	0.51	0.50	2	0.51	0.55	8	1.43	1.46	2	1.43	0.65	**75**
Sum of PFAS (WA DER List)	µg/L	0.01	0.55	0.53	4	0.55	0.6	9	1.57	1.61	3	1.57	0.69	**78**
Sum of PFAS	µg/L	0.01	0.55	0.53	4	0.55	0.6	9	1.64	1.68	2	1.64	0.69	**82**

***RPDs have only been considered where a concentration is greater than 1 times the LOR.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each LOR multiplier range are: No Limit (1 - 10 x LOR); 50 (10 - 20 x LOR); 20 (> 20 x LOR))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

	Date		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023	
	Field ID		0967_SW032_230911	0967_QC103_230911		0967_SW032_230911	0967_QC203_230911		0967_MW119_230911	0967_QC104_230911		0967_MW119_230911	0967_QC204_230911	
	Matrix Type		Water	Water		Water	Water		Water	Water		Water	Water	
	Lab Report Number		EP2312522	EP2312522	RPD	EP2312522	1026632	RPD	EP2312521	EP2312521	RPD	EP2312521	1026632	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.17	0.16	6	0.17	0.16	6	<0.01	<0.01	0	<0.01	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.49	0.45	9	0.49	0.61	22	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.02	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.04	0.04	0	0.04	0.03	29	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.01	0.01	0	0.01	0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	0.66	0.61	8	0.66	0.77	15	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFAS (WA DER List)	µg/L	0.01	0.71	0.66	7	0.71	0.84	17	<0.01	<0.01	0	<0.01	<0.05	0
Sum of PFAS	µg/L	0.01	0.71	0.66	7	0.71	0.86	19	<0.01	<0.01	0	<0.01	<0.1	0

		Date	11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023		11 Sep 2023	11 Sep 2023	
		Field ID	0967_MW138_230911	0967_QC105_230911		0967_MW120_230911	0967_QC205_230911		0967_SW016_230911	0967_QC106_230911		0967_SW016_230911	0967_QC206_230911	
		Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water	
		Lab Report Number	EP2312521	EP2312521	RPD	EP2312521	1026632	RPD	EP2312522	EP2312522	RPD	EP2312522	1026632	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.02	<0.02	0	0.02	0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.02	0.03	40	0.02	0.02	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	0.05	<0.01	133	0.29	0.30	3	0.29	0.28	4
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	1.10	0.98	12	1.10	1.2	9
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.05	0.05	0	0.05	0.04	22
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.01	0.01	0	0.01	0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	0.05	<0.01	133	1.39	1.28	8	1.39	1.48	6
Sum of PFAS (WA DER List)	µg/L	0.01	<0.01	<0.01	0	0.05	<0.05	0	1.47	1.34	9	1.47	1.55	5
Sum of PFAS	µg/L	0.01	<0.01	<0.01	0	0.05	<0.1	0	1.49	1.37	8	1.49	1.59	6

		Date	13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023	
		Field ID	0967_MW112_230913	0967_QC107_230913		0967_MW112_230913	0967_QC207_230911		0967_MW113_230913	0967_QC108_230913		0967_MW113_230913	0967_QC208_230911	
		Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water	
		Lab Report Number	EP2312633	EP2312633	RPD	EP2312633	1026632	RPD	EP2312633	EP2312633	RPD	EP2312633	1026632	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.05	0.05	0	0.05	0.04	22
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.05	0.05	0	0.05	0.04	22
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.06	0.06	0	0.06	0.05	18	0.31	0.30	3	0.31	0.28	10
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.13	0.13	0	0.13	0.15	14	0.19	0.18	5	0.19	0.21	10
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.02	<0.02	0	<0.02	0.01	0	0.05	0.05	0	0.05	0.04	22
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.01	0.01	0	0.01	0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	0.19	0.19	0	0.19	0.2	5	0.50	0.48	4	0.50	0.49	2
Sum of PFAS (WA DER List)	µg/L	0.01	0.19	0.19	0	0.19	0.21	10	0.61	0.59	3	0.61	0.58	5
Sum of PFAS	µg/L	0.01	0.19	0.19	0	0.19	0.21	10	0.66	0.64	3	0.66	0.65	2

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B6 - Water Samples Relative Percentage Differences (RPDs)

PFAS OMP
RAAF Base Pearce
Post-winter 2023

			Date	13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023	
			Field ID	0967_MW146_230913	0967_QC109_230913		0967_MW146_230913	0967_QC209_230911		0967_MW122S_230913	0967_QC111_230913		0967_MW122S_230913	0967_QC211_230911	
			Matrix Type	Water	Water		Water	Water		Water	Water		Water	Water	
			Lab Report Number	EP2312633	EP2312633	RPD	EP2312633	1026632	RPD	EP2312633	EP2312633	RPD	EP2312633	1026632	RPD
	Unit	LOR													
PFAS - Perfluoroalkyl Sulfonic Acids															
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.06	0.06	0	0.06	0.06	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.10	0.10	0	0.10	0.08	22
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.08	0.10	22	0.08	0.06	29	1.01	1.04	3	1.01	0.90	12
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	0.04	0.05	22	0.04	<0.01	120	0.03	0.03	0	0.03	0.02	40
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.01	0.02	67	0.01	0.01	0	0.05	0.05	0	0.05	0.06	18
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids															
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	0.11	0.12	9	0.11	0.09	20
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.02	0.02	0	0.02	0.02	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids															
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides															
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS															
Sum of PFHxS and PFOS	µg/L	0.01	0.09	0.12	29	0.09	0.07	25	1.06	1.09	3	1.06	0.96	10
Sum of PFAS (WA DER List)	µg/L	0.01	0.09	0.12	29	0.09	0.07	25	1.25	1.29	3	1.25	1.16	7
Sum of PFAS	µg/L	0.01	0.13	0.17	27	0.13	<0.1	26	1.38	1.42	3	1.38	1.27	8

	Date		14 Sep 2023	14 Sep 2023		14 Sep 2023	14 Sep 2023		14 Sep 2023	14 Sep 2023		14 Sep 2023	14 Sep 2023	
	Field ID		0967_POT147_230914	0967_QC112_230914		0967_POT032_230914	0967_QC113_230914		0967_POT032_230914	0967_QC213_230911		0967_POT015_230914	0967_QC115_230914	
	Matrix Type		Water	Water		Water	Water		Water	Water		Water	Water	
	Lab Report Number		EP2312717	EP2312717	RPD	EP2312719	EP2312719	RPD	EP2312719	1026632	RPD	EP2312720	EP2312720	RPD
	Unit	LOR												
PFAS - Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.04	0.04	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
PFAS - Perfluoroalkyl Carboxylic Acids														
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.01	0	<0.02	<0.02	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.01	0	<0.05	<0.05	0
PFAS - Perfluoroalkyl Sulfonamides														
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.05	0	<0.02	<0.02	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS														
Sum of PFHxS and PFOS	µg/L	0.01	0.04	0.04	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFAS (WA DER List)	µg/L	0.01	0.04	0.04	0	<0.01	<0.01	0	<0.01	<0.05	0	<0.01	<0.01	0
Sum of PFAS	µg/L	0.01	0.04	0.04	0	<0.01	<0.01	0	<0.01	<0.1	0	<0.01	<0.01	0

			Date	14 Sep 2023	14 Sep 2023		15 Sep 2023	15 Sep 2023		15 Sep 2023	15 Sep 2023	
			Field ID	0967_POT015_230914	0967_QC215_230911		0967_POT181_230915	0967_QC117_230915		0967_POT181_230915	0967_QC217_230915	
			Matrix Type	Water	Water		Water	Water		Water	Water	
			Lab Report Number	EP2312720	1026632	RPD	EP2312801	EP2312801	RPD	EP2312801	1026632	RPD
	Unit	LOR										
PFAS - Perfluoroalkyl Sulfonic Acids												
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01		<0.01	<0.01	0	0.02	0.02	0	0.02	0.02	0
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01		<0.01	<0.01	0	0.01	<0.01	0	0.01	<0.01	0
Perfluorodecane sulfonic acid (PFDS)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
PFAS - Perfluoroalkyl Carboxylic Acids												
Perfluorobutanoic acid (PFBA)	µg/L	0.05		<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
Perfluoropentanoic acid (PFPeA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorohexanoic acid (PFHxA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorooctanoic acid (PFOA)	µg/L	0.01		<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorononanoic acid (PFNA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorodecanoic acid (PFDA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorododecanoic acid (PFDoDA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01		<0.02	<0.01	0	<0.02	<0.02	0	<0.02	<0.01	0
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01		<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids												
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.01		<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.01		<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.01		<0.05	<0.01	0	<0.05	<0.05	0	<0.05	<0.01	0
PFAS - Perfluoroalkyl Sulfonamides												
Perfluorooctane sulfonamide (FOSA)	µg/L	0.02		<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	µg/L	0.02		<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	µg/L	0.02		<0.02	<0.05	0	<0.02	<0.02	0	<0.02	<0.05	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	µg/L	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
PFAS												
Sum of PFHxS and PFOS	µg/L	0.01		<0.01	<0.01	0	0.03	0.02	40	0.03	0.02	40
Sum of PFAS (WA DER List)	µg/L	0.01		<0.01	<0.05	0	0.03	0.02	40	0.03	<0.05	0
Sum of PFAS	µg/L	0.01		<0.01	<0.1	0	0.03	0.02	40	0.03	<0.1	0

	Date		13 Sep 2023	13 Sep 2023		13 Sep 2023	13 Sep 2023		14 Sep 2023	14 Sep 2023		14 Sep 2023	14 Sep 2023		14 Sep 2023	14 Sep 2023	
	Field ID		0967_SD025_230913	0967_QC110_230913		0967_SD025_230913	0967_QC210_230911		0967_SD058_230914	0967_QC114_230914		0967_SD058_230914	0967_QC214_230914		0967_SD053_230914	0967_QC116_230914	
	Matrix Type		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil		Soil	Soil	
	Lab Report Number		EP2312635	EP2312635	RPD	EP2312635	1026632	RPD	EP2312714	EP2312714	RPD	EP2312714	1026632	RPD	EP2312714	EP2312714	RPD
	Unit	LOR															
PFAS - Perfluoroalkyl Sulfonic Acids																	
Perfluorobutane sulfonic acid (PFBS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoropentane sulfonic acid (PFPeS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorohexane sulfonic acid (PFHxS)	mg/kg	0.0002	0.0040	0.0017	**81**	0.0040	0.0098	**84**	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroheptane sulfonic acid (PFHpS)	mg/kg	0.0002	0.0008	0.0002	120	0.0008	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorooctane sulfonic acid (PFOS)	mg/kg	0.0002	0.0959	0.0326	**99**	0.0959	0.066	**37**	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0005	0.0006	18
Perfluorodecane sulfonic acid (PFDS)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
PFAS - Perfluoroalkyl Carboxylic Acids																	
Perfluorobutanoic acid (PFBA)	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0	<0.001	<0.005	0	<0.001	<0.001	0
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0002	0.0005	0.0003	50	0.0005	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorooctanoic acid (PFOA)	mg/kg	0.0002	0.0003	<0.0002	40	0.0003	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorononanoic acid (PFNA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorodecanoic acid (PFDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluoroundecanoic acid (PFUnDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorododecanoic acid (PFDoDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotridecanoic acid (PFTrDA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0006	<0.0006	0
PFAS - (n:2) Fluorotelomer Sulfonic Acids																	
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0	<0.0005	<0.01	0	<0.0005	<0.0005	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
PFAS - Perfluoroalkyl Sulfonamides																	
Perfluorooctane sulfonamide (FOSA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0	<0.0002	<0.005	0	<0.0002	<0.0002	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0006	<0.0006	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0006	<0.0006	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0	<0.0002	<0.01	0	<0.0002	<0.0002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/kg	0.0005	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0005	0	<0.0005	<0.005	0	<0.0005	<0.0006	0
PFAS																	
Sum of PFHxS and PFOS	mg/kg	0.0002	0.0999	0.0343	**98**	0.0999	0.0758	**27**	<0.0002	<0.0002	0	<0.0002	<0.005	0	0.0005	0.0006	18
Sum of PFAS (WA DER List)	mg/kg	0.0002	0.101	0.0346	**98**	0.101	0.0758	**29**	<0.0002	<0.0002	0	<0.0002	<0.01	0	0.0005	0.0006	18
Sum of PFAS	mg/kg	0.0002	0.102	0.0348	**98**	0.102	0.0758	**29**	<0.0002	<0.0002	0	<0.0002	<0.05	0	0.0005	0.0006	18

***RPDs have only been considered where a concentration is greater than 1 times the LOR.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each LOR multiplier range are: No Limit (1 - 10 x LOR); 50 (10 - 20 x LOR); 20 (> 20 x LOR))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

Table B4b: Sediment Results Summary

Location ID	PFOS (mg/kg)		PFOA (mg/kg)		Sum of PFHxS and PFOS (mg/kg)	
	Historical range	Post-winter 2023	Historical range	Post-winter 2023	Historical range	Post-winter 2023
On-Site drainage Channels						
SD002	0.0020 – 0.2380	0.0106	<0.0002 - 0.0010	<0.0002	0.0030 – 0.2480	0.0116
SD007	0.8540 – 36.3000	7.02	0.0030 – 0.0770	0.0548	0.9210 – 37.1000	7.34
SD013	0.1240 – 0.4160	0.274	0.0011 – 0.0045	**0.0009**	0.1380 – 0.4410	0.285
SD015	0.0128 – 0.2300	0.0182	<0.0002 – 0.0026	0.0002	0.0147 – 0.2397	0.0221
SD018	0.0090 – 0.1420	0.0058	<0.0002 – 0.0008	<0.0002	0.0094 – 0.1470	**0.0061**
SD020	0.0034 – 0.0986	0.0051	<0.0002 – 0.0005	<0.0002	0.0043 – 0.1000	0.0055
Ellen Brook						
SD021	<0.0002 – 0.0007	<0.0002	<0.0002	<0.0002	<0.0002 – 0.0007	<0.0002
SD022	0.0006 – 0.0458	0.0030	<0.0002 – 0.0037	<0.0002	0.0006 – 0.0753	0.0039
SD024	<0.0002 – 0.0163	0.0012	<0.0002	<0.0002	<0.0002 – 0.0172	0.0012
SD025	0.0007 – 0.2550	0.0959	<0.0002 – 0.0005	0.0003	0.0007 – 0.1610	0.0999
SD026	0.0003 – 0.0133	0.0068	<0.0002	<0.0002	0.0003 – 0.0136	0.0073
SD028	0.0002 – 0.0212	0.0087	<0.0002	<0.0002	<0.0002 – 0.0221	0.0095
SD029	<0.0002 – 0.0450	0.0041	<0.0002 – 0.0004	<0.0002	<0.0002 – 0.0457	0.0046
SD049	<0.0002 – 0.0930	0.0002	<0.0002	<0.0002	<0.0002 – 0.0930	0.0002
SD050	<0.0002 – 0.0020	0.0038	<0.0002 – 0.0028	<0.0002	<0.0002 – 0.0020	0.0038
Ki-it Monger Brook						
SD032	0.0004 – 0.0961	0.0035	<0.0002 – 0.0005	<0.0002	0.0004 – 0.1020	0.0038
SD034	0.0020 – 0.3530	0.0411	<0.0002 – 0.0008	<0.0002	0.0020 – 0.3620	0.0428
SD035	0.0050 – 0.1410	0.0069	<0.0002 – 0.0007	<0.0002	0.0054 – 0.1590	0.0072
SD036	0.0012 – 0.0798	0.0191	<0.0002 – 0.0003	<0.0002	0.0012 – 0.0821	0.0198
SD044	0.0016 – 0.0233	0.0088	<0.0002 – 0.0003	<0.0002	0.0016 – 0.0245	0.0090
SD046	<0.0002 – 0.0100	0.0009	<0.0002	<0.0002	<0.0002 – 0.0067	0.0009
West Bullsbrook						
SD053	<0.0002 – 0.0009	0.0005	<0.0002	<0.0002	<0.0002 – 0.0009	0.0005
SD055	<0.0002 – 0.0410	0.0012	<0.0002	<0.0002	<0.0002 – 0.0410	0.0012
SD058	<0.0002 – 0.0043	<0.0002	<0.0002	<0.0002	<0.0002 – 0.0043	<0.0002
SD060	<0.0002 – 0.0139	0.0039	<0.0002 – 0.0002	<0.0002	<0.0002 – 0.0149	0.0042
Twin Swamps						
SD061	<0.0002 - 0.0795	<0.0002	<0.0002	<0.0002	<0.0002 - 0.0875	<0.0002
SD062	<0.0002 – 0.0068	<0.0002	<0.0002	<0.0002	<0.0002 – 0.0071	<0.0002

Notes: **Value**: concentration above historical range; **Value**: concentration below historical range.

APPENDIX

C

LABORATORY CERTIFICATES

Cardno

now

Stantec

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312521

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 Client: Stantec Project Manager: [redacted]
Phone:

ALS Compass COC Reference: 5752, 5760, 5761 # Samples: 28 samples + 1 Esky Sampler:
Phone:

Turnaround Requirements: Standard Urgent

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 11/09/23 ~2:30pm	Date / Time: 1215 12/9	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57157 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW117		11/09/2023 08:56 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_MW118		11/09/2023 09:44 AM	WATER	ALS: 5 Non ALS: 0	No		X		
003	0967_MW119		11/09/2023 10:45 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_QC104		11/09/2023 10:47 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_MW139		11/09/2023 12:02 PM	WATER	ALS: 5 Non ALS: 0	No		X		
006	0967_MW140S		11/09/2023 12:26 PM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_MW140D		11/09/2023 12:34 PM	WATER	ALS: 3 Non ALS: 0	No		X		

Monday, September 11, 2023 11:49:08 PM

CHAIN OF CUSTODY

COC#: 57157 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_MW121		11/09/2023 12:47 PM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_MW138		11/09/2023 01:27 PM	WATER	ALS: 3 Non ALS: 0	No		X		
010	0967_QC105		11/09/2023 01:29 PM	WATER	ALS: 3 Non ALS: 0	No		X		
011	0967_MW120		11/09/2023 01:50 PM	WATER	ALS: 5 Non ALS: 0	No		X		
012	0967_QC301		11/09/2023 02:26 PM	WATER	ALS: 2 Non ALS: 0	No	X			
013	0967_QC401		11/09/2023 02:26 PM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 57157 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO:

EMAIL INVOICES TO:

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW117	HDPE (no PTFE)	20 mL	00351221006110	Grey	No	
001	0967_MW117	HDPE (no PTFE)	20 mL	00351221006210	Grey	No	
001	0967_MW117	Clear Plastic Bottle - Natural	125 mL	00070522168020	Green	No	
001	0967_MW117	HDPE (no PTFE)	20 mL	00350822058740	Grey	No	
002	0967_MW118	HDPE (no PTFE)	20 mL	00350822058834	Grey	No	
002	0967_MW118	HDPE (no PTFE)	20 mL	00351221006225	Grey	No	
002	0967_MW118	HDPE (no PTFE)	20 mL	00351221006237	Grey	No	
002	0967_MW118	Clear Plastic Bottle - Natural	125 mL	00070522168064	Green	No	
002	0967_MW118	Clear Plastic Bottle - Natural	125 mL	00070522168038	Green	No	
003	0967_MW119	HDPE (no PTFE)	20 mL	00351221006155	Grey	No	
003	0967_MW119	HDPE (no PTFE)	20 mL	00351221005834	Grey	No	
003	0967_MW119	HDPE (no PTFE)	20 mL	00351221006175	Grey	No	
004	0967_QC104	HDPE (no PTFE)	20 mL	00351221005872	Grey	No	
004	0967_QC104	Clear Plastic Bottle - Natural	125 mL	00070522167773	Green	No	
004	0967_QC104	HDPE (no PTFE)	20 mL	00350822058841	Grey	No	
005	0967_MW139	HDPE (no PTFE)	20 mL	00350822058846	Grey	No	
005	0967_MW139	Clear Plastic Bottle - Natural	125 mL	00070822326913	Green	No	
005	0967_MW139	HDPE (no PTFE)	20 mL	00351221006212	Grey	No	
005	0967_MW139	HDPE (no PTFE)	20 mL	00351221005836	Grey	No	
005	0967_MW139	Clear Plastic Bottle - Natural	125 mL	00070822326982	Green	No	
006	0967_MW140S	HDPE (no PTFE)	20 mL	00351221006207	Grey	No	
006	0967_MW140S	HDPE (no PTFE)	20 mL	00351221006020	Grey	No	
006	0967_MW140S	HDPE (no PTFE)	20 mL	00351221006147	Grey	No	
007	0967_MW140D	HDPE (no PTFE)	20 mL	00351221005905	Grey	No	
007	0967_MW140D	Clear Plastic Bottle - Natural	125 mL	00070822327063	Green	No	
007	0967_MW140D	HDPE (no PTFE)	20 mL	00351221006089	Grey	No	
008	0967_MW121						

CHAIN OF CUSTODY

COC#: 57157 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

008	0967_MW121	HDPE (no PTFE)	20 mL	00351221006202	Grey	No	
008	0967_MW121	Clear Plastic Bottle - Natural	125 mL	00070822326880	Green	No	
009	0967_MW138	Clear Plastic Bottle - Natural	125 mL	00070822327090	Green	No	
009	0967_MW138	HDPE (no PTFE)	20 mL	00351221005811	Grey	No	
009	0967_MW138	HDPE (no PTFE)	20 mL	00351221006180	Grey	No	
010	0967_QC105	Clear Plastic Bottle - Natural	125 mL	00070822326955	Green	No	
010	0967_QC105	HDPE (no PTFE)	20 mL	00351221005822	Grey	No	
010	0967_QC105	HDPE (no PTFE)	20 mL	00351221006255	Grey	No	
011	0967_MW120	Clear Plastic Bottle - Natural	125 mL	00070522167967	Green	No	
011	0967_MW120	HDPE (no PTFE)	20 mL	00351221006139	Grey	No	
011	0967_MW120	HDPE (no PTFE)	20 mL	00351221005938	Grey	No	
011	0967_MW120	HDPE (no PTFE)	20 mL	00351221006117	Grey	No	
011	0967_MW120	HDPE (no PTFE)	20 mL	00351221005910	Grey	No	
012	0967_QC301	HDPE (no PTFE)	20 mL	00351221005921	Grey	No	
012	0967_QC301	HDPE (no PTFE)	20 mL	00351221006261	Grey	No	
013	0967_QC401	HDPE (no PTFE)	20 mL	00350822058904	Grey	No	
013	0967_QC401	HDPE (no PTFE)	20 mL	00350822058806	Grey	No	

Total Bottle Count: ALS: 43, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312521**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57157	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Sep-2023 12:15	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 13 / 13

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312521-001	11-Sep-2023 08:56	0967_MW117_230911	✓	✓
EP2312521-002	11-Sep-2023 09:44	0967_MW118_230911	✓	✓
EP2312521-003	11-Sep-2023 10:45	0967_MW119_230911	✓	✓
EP2312521-004	11-Sep-2023 10:47	0967_QC104_230911	✓	✓
EP2312521-005	11-Sep-2023 12:02	0967_MW139_230911	✓	✓
EP2312521-006	11-Sep-2023 12:26	0967_MW140S_230911	✓	✓
EP2312521-007	11-Sep-2023 12:34	0967_MW140D_230911	✓	✓
EP2312521-008	11-Sep-2023 12:47	0967_MW121_230911	✓	✓
EP2312521-009	11-Sep-2023 13:27	0967_MW138_230911	✓	✓
EP2312521-010	11-Sep-2023 13:29	0967_QC105_230911	✓	✓
EP2312521-011	11-Sep-2023 13:50	0967_MW120_230911	✓	✓
EP2312521-012	11-Sep-2023 14:26	0967_QC301_230911	✓	
EP2312521-013	11-Sep-2023 14:26	0967_QC401_230911	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312521**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57157	Issue Date	: 22-Sep-2023 14:00
Sampler	: [redacted] [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW117_230911	0967_MW118_230911	0967_MW119_230911	0967_QC104_230911	0967_MW139_230911
				Sampling date / time	11-Sep-2023 08:56	11-Sep-2023 09:44	11-Sep-2023 10:45	11-Sep-2023 10:47	11-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312521-001	EP2312521-002	EP2312521-003	EP2312521-004	EP2312521-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		3	<1	8	6	<1
Total Alkalinity as CaCO3	----	1	mg/L		3	<1	8	6	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		136	67	41	43	72
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		1510	1480	468	472	830
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		32	38	7	7	14
Magnesium	7439-95-4	1	mg/L		158	172	25	25	57
Sodium	7440-23-5	1	mg/L		661	646	219	220	384
Potassium	7440-09-7	1	mg/L		18	20	10	10	11
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		45.5	43.1	14.2	14.3	24.9
ø Total Cations	----	0.01	meq/L		43.8	44.7	12.2	12.2	22.4
ø Ionic Balance	----	0.01	%		1.87	1.73	7.68	7.90	5.37
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.03
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	0.04	<0.01	<0.01	0.14
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW117_230911	0967_MW118_230911	0967_MW119_230911	0967_QC104_230911	0967_MW139_230911
				Sampling date / time	11-Sep-2023 08:56	11-Sep-2023 09:44	11-Sep-2023 10:45	11-Sep-2023 10:47	11-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312521-001	EP2312521-002	EP2312521-003	EP2312521-004	EP2312521-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW117_230911	0967_MW118_230911	0967_MW119_230911	0967_QC104_230911	0967_MW139_230911
				Sampling date / time	11-Sep-2023 08:56	11-Sep-2023 09:44	11-Sep-2023 10:45	11-Sep-2023 10:47	11-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312521-001	EP2312521-002	EP2312521-003	EP2312521-004	EP2312521-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.04**	<0.01	<0.01	**0.21**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.04**	<0.01	<0.01	**0.14**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.04**	<0.01	<0.01	**0.19**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.6**	**97.4**	**94.9**	**97.4**	**99.0**
13C8-PFOA	----	0.02	%		**96.2**	**97.6**	**97.6**	**101**	**98.6**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW140S_230911	0967_MW140D_230911	0967_MW121_230911	0967_MW138_230911	0967_QC105_230911
				Sampling date / time	11-Sep-2023 12:26	11-Sep-2023 12:34	11-Sep-2023 12:47	11-Sep-2023 13:27	11-Sep-2023 13:29
Compound	CAS Number	LOR	Unit		EP2312521-006	EP2312521-007	EP2312521-008	EP2312521-009	EP2312521-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**4**	**401**	**20**	**233**	**239**
Total Alkalinity as CaCO3	----	1	mg/L		**4**	**401**	**20**	**233**	**239**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**82**	**46**	**131**	**81**	**104**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**973**	**626**	**1400**	**1120**	**1120**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**18**	**10**	**36**	**134**	**134**
Magnesium	7439-95-4	1	mg/L		**63**	**4**	**112**	**86**	**86**
Sodium	7440-23-5	1	mg/L		**495**	**471**	**764**	**523**	**522**
Potassium	7440-09-7	1	mg/L		**15**	**67**	**16**	**20**	**20**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**29.2**	**26.6**	**42.6**	**37.9**	**38.5**
ø Total Cations	----	0.01	meq/L		**28.0**	**23.0**	**44.6**	**37.0**	**37.0**
ø Ionic Balance	----	0.01	%		**2.16**	**7.25**	**2.33**	**1.21**	**2.06**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**0.01**	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW140S_230911	0967_MW140D_230911	0967_MW121_230911	0967_MW138_230911	0967_QC105_230911
				Sampling date / time	11-Sep-2023 12:26	11-Sep-2023 12:34	11-Sep-2023 12:47	11-Sep-2023 13:27	11-Sep-2023 13:29
Compound	CAS Number	LOR	Unit		EP2312521-006	EP2312521-007	EP2312521-008	EP2312521-009	EP2312521-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW140S_230911	0967_MW140D_230911	0967_MW121_230911	0967_MW138_230911	0967_QC105_230911
				Sampling date / time	11-Sep-2023 12:26	11-Sep-2023 12:34	11-Sep-2023 12:47	11-Sep-2023 13:27	11-Sep-2023 13:29
Compound	CAS Number	LOR	Unit		EP2312521-006	EP2312521-007	EP2312521-008	EP2312521-009	EP2312521-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.01**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.01**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.01**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.6**	**91.8**	**101**	**94.8**	**99.5**
13C8-PFOA	----	0.02	%		**103**	**98.9**	**94.8**	**96.8**	**102**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW120_230911	----	----	----	----
				Sampling date / time	11-Sep-2023 13:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312521-011	--------	--------	--------	--------
					Result	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		<1	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**192**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**2460**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**76**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**257**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**1080**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**25**	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**73.4**	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		**72.6**	----	----	----	----
ø **Ionic Balance**	----	0.01	%		**0.57**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.05**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW120_230911	----	----	----	----
				Sampling date / time	11-Sep-2023 13:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312521-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW120_230911	----	----	----	----
				Sampling date / time	11-Sep-2023 13:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312521-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.05**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.05**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.05**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**90.3**	----	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230911	0967_QC401_230911	----	----	----
				Sampling date / time	11-Sep-2023 14:26	11-Sep-2023 14:26	----	----	----
Compound	CAS Number	LOR	Unit		EP2312521-012	EP2312521-013	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230911	0967_QC401_230911	----	----	----
				Sampling date / time	11-Sep-2023 14:26	11-Sep-2023 14:26	----	----	----
Compound	CAS Number	LOR	Unit		EP2312521-012	EP2312521-013	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.3**	**92.1**	----	----	----
13C8-PFOA	----	0.02	%		**98.8**	**96.4**	----	----	----

Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: RINSATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312521**	Page	: 1 of 13
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57157	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 13		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5307374)									
EP2312521-002	0967_MW118_230911	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
EP2312521-010	0967_QC105_230911	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	239	240	0.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	239	240	0.5	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5298205)									
EP2312521-001	0967_MW117_230911	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	136	129	5.1	0% - 20%
EP2312521-011	0967_MW120_230911	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	192	189	1.7	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5298206)									
EP2312521-001	0967_MW117_230911	ED045G: Chloride	16887-00-6	1	mg/L	1510	1510	0.4	0% - 20%
EP2312521-011	0967_MW120_230911	ED045G: Chloride	16887-00-6	1	mg/L	2460	2470	0.6	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5297770)									
EP2312521-001	0967_MW117_230911	ED093F: Calcium	7440-70-2	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	158	158	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	661	667	1.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	18	18	0.0	0% - 50%
EP2312521-011	0967_MW120_230911	ED093F: Calcium	7440-70-2	1	mg/L	76	76	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	257	261	1.5	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1080	1100	1.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	25	25	0.0	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	0967_MW118_230911	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.73	0.75	2.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.30	1.20	7.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	0967_MW120_230911	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.17	0.16	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.49	0.46	5.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625)									
EP2312521-002	0967_MW118_230911	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.21	0.20	5.3	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625) - continued									
EP2312522-008	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298626)									
EP2312521-011	0967_MW120_230911	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625)									
EP2312521-002	0967_MW118_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625) - continued									
EP2312521-002	0967_MW118_230911	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626)									
EP2312521-011	0967_MW120_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626) - continued									
EP2312522-005	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	0967_MW118_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	0967_MW120_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298625)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 5298625) - continued									
EP2312521-002	0967_MW118_230911	EP231X: Sum of PFAS	----	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.04	0.04	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.51	2.40	4.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	2.03	1.95	4.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.40	2.29	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5298626)									
EP2312521-011	0967_MW120_230911	EP231X: Sum of PFAS	----	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.05	0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.66	0.62	6.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5307374)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	115	85.1	126
				<1	200 mg/L	101	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298205)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.3	89.9	112
				<1	500 mg/L	91.2	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5298206)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	106	88.6	113
				<1	1000 mg/L	102	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5297770)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	103	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	97.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	88.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	88.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	96.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	89.8	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	100	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	94.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	88.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	90.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	94.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	95.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	87.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	86.7	64.2	133
EP231P: PFAS Sums (QCLot: 5298625)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5298626)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298205)							
EP2312521-001	0967_MW117_230911	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	110	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5298206)							
EP2312521-001	0967_MW117_230911	ED045G: Chloride	16887-00-6	1000 mg/L	84.9	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	0967_MW139_230911	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	107	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	97.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	96.6	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	96.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	109	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	74.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	84.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)							
EP2312521-005	0967_MW139_230911	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.7	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.9	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	110	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	91.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	94.5	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	97.7	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	101	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	99.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	95.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.8	69.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626) - continued							
EP2312522-001	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	102	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	99.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	91.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)							
EP2312521-005	0967_MW139_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	93.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	88.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	94.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	104	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	97.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	75.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	87.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	87.5	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	90.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	0967_MW139_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	102	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	104	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	98.3	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	98.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	103	67.0	138

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626) - continued							
EP2312522-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	92.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312521**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Site	: Pearce GW - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 13
Order number	: pfas-omp Pearce	No. of samples analysed	: 13

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911	**11-Sep-2023**	**----**	----	----	**20-Sep-2023**	25-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911	**11-Sep-2023**	**----**	----	----	**20-Sep-2023**	09-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911	**11-Sep-2023**	**----**	----	----	**20-Sep-2023**	09-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911	**11-Sep-2023**	**----**	----	----	**18-Sep-2023**	18-Sep-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911, 0967_QC301_230911, 0967_QC401_230911	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911, 0967_QC301_230911, 0967_QC401_230911	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911, 0967_QC301_230911, 0967_QC401_230911	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911, 0967_QC301_230911, 0967_QC401_230911	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_MW117_230911, 0967_MW118_230911, 0967_MW119_230911, 0967_QC104_230911, 0967_MW139_230911, 0967_MW140S_230911, 0967_MW140D_230911, 0967_MW121_230911, 0967_MW138_230911, 0967_QC105_230911, 0967_MW120_230911, 0967_QC301_230911, 0967_QC401_230911	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312522

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_09607_PFASOMP_23 **Client:** Stantec

Project Manager: [redacted]

ALS Compass COC Reference: 5757, 5760, 5761 **# Samples:** 28 samples + 1 Esky

Sampler: [redacted]

Phone: [redacted]

Turnaround Requirements: Standard ~~Urgent~~

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 11/09/23 ~2:30	Date / Time: 1215 12/9	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57160 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS | **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW044		11/09/2023 09:22 AM	WATER	ALS: 5 Non ALS: 0	No	X		
002	0967_QC101		11/09/2023 09:23 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW020		11/09/2023 09:55 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_QC102		11/09/2023 09:56 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW032		11/09/2023 10:18 AM	WATER	ALS: 5 Non ALS: 0	No	X		
006	0967_QC103		11/09/2023 10:21 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_SW034		11/09/2023 11:28 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57160 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted] / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS

ANALYSIS REQUIRED

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_SW035		11/09/2023 11:29 AM	WATER	ALS: 5 Non ALS: 0	No	X		
009	0967_SW016		11/09/2023 02:06 PM	WATER	ALS: 3 Non ALS: 0	No	X		
010	0967_QC106		11/09/2023 02:06 PM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57160 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted]

SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW044	Clear Plastic Bottle - Natural	125 mL	00070522167844	Green	No	
001	0967_SW044	HDPE (no PTFE)	20 mL	00351221005715	Grey	No	
001	0967_SW044	HDPE (no PTFE)	20 mL	00351221005777	Grey	No	
001	0967_SW044	HDPE (no PTFE)	20 mL	00350822058861	Grey	No	
002	0967_QC101	Clear Plastic Bottle - Natural	125 mL	00070522167996	Green	No	
002	0967_QC101	HDPE (no PTFE)	20 mL	00351221006288	Grey	No	
002	0967_QC101	HDPE (no PTFE)	20 mL	00351221006275	Grey	No	
003	0967_SW020	Clear Plastic Bottle - Natural	125 mL	00070822326866	Green	No	
003	0967_SW020	HDPE (no PTFE)	20 mL	00351221005980	Grey	No	
003	0967_SW020	HDPE (no PTFE)	20 mL	00351221006292	Grey	No	
004	0967_QC102	Clear Plastic Bottle - Natural	125 mL	00070522088320	Green	No	
004	0967_QC102	HDPE (no PTFE)	20 mL	00351221006084	Grey	No	
004	0967_QC102	HDPE (no PTFE)	20 mL	00351221006183	Grey	No	
005	0967_SW032	Clear Plastic Bottle - Natural	125 mL	00070522167977	Green	No	
005	0967_SW032	HDPE (no PTFE)	20 mL	00351221006272	Grey	No	
005	0967_SW032	HDPE (no PTFE)	20 mL	00351221005971	Grey	No	
005	0967_SW032	HDPE (no PTFE)	20 mL	00351221006248	Grey	No	
006	0967_QC103	Clear Plastic Bottle - Natural	125 mL	00070522167911	Green	No	
006	0967_QC103	HDPE (no PTFE)	20 mL	00351221006293	Grey	No	
006	0967_QC103	HDPE (no PTFE)	20 mL	00351221006123	Grey	No	
007	0967_SW034	Clear Plastic Bottle - Natural	125 mL	00070522088322	Green	No	
007	0967_SW034	HDPE (no PTFE)	20 mL	00351221006040	Grey	No	
007	0967_SW034	HDPE (no PTFE)	20 mL	00351221006213	Grey	No	
008	0967_SW035	HDPE (no PTFE)	20 mL	00351221005906	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 57160 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

008	0967_SW035	HDPE (no PTFE)	20 mL	00351221006092	Grey	No	
008	0967_SW035	Clear Plastic Bottle - Natural	125 mL	00070522167780	Green	No	
008	0967_SW035	HDPE (no PTFE)	20 mL	00351221006003	Grey	No	
009	0967_SW016	HDPE (no PTFE)	20 mL	00351221005815	Grey	No	
009	0967_SW016	Clear Plastic Bottle - Natural	125 mL	00070822327177	Green	No	
009	0967_SW016	HDPE (no PTFE)	20 mL	00351221005917	Grey	No	
010	0967_QC106	HDPE (no PTFE)	20 mL	00351221006264	Grey	No	
010	0967_QC106	Clear Plastic Bottle - Natural	125 mL	00070822327020	Green	No	
010	0967_QC106	HDPE (no PTFE)	20 mL	00351221006056	Grey	No	
		HDPE (no PTFE)	20 mL	00351221006267	Grey	No	

Total Bottle Count: ALS: 36, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312522**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57160	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Sep-2023 12:15	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312522-001	11-Sep-2023 09:22	0967_SW044_230911	✓	✓
EP2312522-002	11-Sep-2023 09:23	0967_QC101_230911	✓	✓
EP2312522-003	11-Sep-2023 09:55	0967_SW020_230911	✓	✓
EP2312522-004	11-Sep-2023 09:56	0967_QC102_230911	✓	✓
EP2312522-005	11-Sep-2023 10:18	0967_SW032_230911	✓	✓
EP2312522-006	11-Sep-2023 10:21	0967_QC103_230911	✓	✓
EP2312522-007	11-Sep-2023 11:28	0967_SW034_230911	✓	✓
EP2312522-008	11-Sep-2023 11:29	0967_SW035_230911	✓	✓
EP2312522-009	11-Sep-2023 14:06	0967_SW016_230911	✓	✓
EP2312522-010	11-Sep-2023 14:06	0967_QC106_230911	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312522**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57160	Issue Date	: 22-Sep-2023 17:05
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW044_230911	0967_QC101_230911	0967_SW020_230911	0967_QC102_230911	0967_SW032_230911
				Sampling date / time	11-Sep-2023 09:22	11-Sep-2023 09:23	11-Sep-2023 09:55	11-Sep-2023 09:56	11-Sep-2023 10:18
Compound	CAS Number	LOR	Unit		EP2312522-001	EP2312522-002	EP2312522-003	EP2312522-004	EP2312522-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**104**	**105**	**151**	**151**	**112**
Total Alkalinity as CaCO3	----	1	mg/L		**104**	**105**	**151**	**151**	**112**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**32**	**34**	**10**	**10**	**24**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**208**	**205**	**34**	**34**	**157**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**31**	**26**	**33**	**27**	**25**
Magnesium	7439-95-4	1	mg/L		**19**	**18**	**6**	**5**	**14**
Sodium	7440-23-5	1	mg/L		**109**	**109**	**52**	**52**	**90**
Potassium	7440-09-7	1	mg/L		**6**	**6**	**8**	**8**	**7**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**8.61**	**8.59**	**4.18**	**4.18**	**7.17**
ø **Total Cations**	----	0.01	meq/L		**8.00**	**7.67**	**4.61**	**4.22**	**6.49**
ø **Ionic Balance**	----	0.01	%		**3.65**	**5.63**	**4.81**	**0.49**	**4.92**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	**0.03**	**0.04**	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	**0.04**	**0.04**	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.09**	**0.10**	**0.42**	**0.42**	**0.17**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	**0.03**	**0.03**	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.42**	**0.40**	**1.01**	**1.04**	**0.49**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.03**	**0.03**	**0.09**	**0.09**	**0.04**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW044_230911	0967_QC101_230911	0967_SW020_230911	0967_QC102_230911	0967_SW032_230911
				Sampling date / time	11-Sep-2023 09:22	11-Sep-2023 09:23	11-Sep-2023 09:55	11-Sep-2023 09:56	11-Sep-2023 10:18
Compound	CAS Number	LOR	Unit		EP2312522-001	EP2312522-002	EP2312522-003	EP2312522-004	EP2312522-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	<0.01	**0.02**	**0.02**	**0.01**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW044_230911	0967_QC101_230911	0967_SW020_230911	0967_QC102_230911	0967_SW032_230911
				Sampling date / time	11-Sep-2023 09:22	11-Sep-2023 09:23	11-Sep-2023 09:55	11-Sep-2023 09:56	11-Sep-2023 10:18
Compound	CAS Number	LOR	Unit		EP2312522-001	EP2312522-002	EP2312522-003	EP2312522-004	EP2312522-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.55**	**0.53**	**1.64**	**1.68**	**0.71**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.51**	**0.50**	**1.43**	**1.46**	**0.66**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.55**	**0.53**	**1.57**	**1.61**	**0.71**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**101**	**90.8**	**100**	**100**
13C8-PFOA	----	0.02	%		**96.2**	**102**	**94.2**	**95.6**	**98.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC103_230911	0967_SW034_230911	0967_SW035_230911	0967_SW016_230911	0967_QC106_230911
				Sampling date / time	11-Sep-2023 10:21	11-Sep-2023 11:28	11-Sep-2023 11:29	11-Sep-2023 14:06	11-Sep-2023 14:06
Compound	CAS Number	LOR	Unit		EP2312522-006	EP2312522-007	EP2312522-008	EP2312522-009	EP2312522-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		112	103	101	74	78
Total Alkalinity as CaCO3	----	1	mg/L		112	103	101	74	78
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		20	23	22	9	8
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		157	143	140	24	24
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		23	25	24	21	16
Magnesium	7439-95-4	1	mg/L		13	12	12	3	3
Sodium	7440-23-5	1	mg/L		90	83	83	24	24
Potassium	7440-09-7	1	mg/L		7	6	6	2	2
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		7.08	6.57	6.42	2.34	2.40
ø Total Cations	----	0.01	meq/L		6.31	6.00	5.95	2.39	2.14
ø Ionic Balance	----	0.01	%		5.76	4.55	3.85	0.99	5.76
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	0.06	0.06	0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	0.07	0.08	0.02	0.03
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.16	0.66	0.73	0.29	0.30
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	0.03	0.03	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.45	1.19	1.30	1.10	0.98
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	0.03	0.04	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.04	0.17	0.21	0.05	0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC103_230911	0967_SW034_230911	0967_SW035_230911	0967_SW016_230911	0967_QC106_230911
				Sampling date / time	11-Sep-2023 10:21	11-Sep-2023 11:28	11-Sep-2023 11:29	11-Sep-2023 14:06	11-Sep-2023 14:06
Compound	CAS Number	LOR	Unit		EP2312522-006	EP2312522-007	EP2312522-008	EP2312522-009	EP2312522-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	**0.02**	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	**0.04**	**0.04**	**0.01**	**0.01**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC103_230911	0967_SW034_230911	0967_SW035_230911	0967_SW016_230911	0967_QC106_230911
				Sampling date / time	11-Sep-2023 10:21	11-Sep-2023 11:28	11-Sep-2023 11:29	11-Sep-2023 14:06	11-Sep-2023 14:06
Compound	CAS Number	LOR	Unit		EP2312522-006	EP2312522-007	EP2312522-008	EP2312522-009	EP2312522-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.66**	**2.25**	**2.51**	**1.49**	**1.37**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.61**	**1.85**	**2.03**	**1.39**	**1.28**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.66**	**2.15**	**2.40**	**1.47**	**1.34**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**94.6**	**94.6**	**102**	**97.4**
13C8-PFOA	----	0.02	%		**99.2**	**99.1**	**99.8**	**96.0**	**99.3**

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312522**	Page	: 1 of 13
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57160	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5307374)									
EP2312521-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
EP2312521-010	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	239	240	0.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	239	240	0.5	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5307375)									
EP2312522-010	0967_QC106_230911	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	78	78	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	78	78	0.0	0% - 20%
EP2312525-010	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	132	134	1.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	132	134	1.5	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5298207)									
EP2312522-001	0967_SW044_230911	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	32	33	4.6	0% - 20%
EP2312633-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	149	147	1.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5298208)									
EP2312522-001	0967_SW044_230911	ED045G: Chloride	16887-00-6	1	mg/L	208	205	1.7	0% - 20%
EP2312633-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1600	1530	4.0	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 5297770)									
EP2312521-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	158	158	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	661	667	1.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	18	18	0.0	0% - 50%
EP2312521-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	76	76	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	257	261	1.5	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1080	1100	1.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	25	25	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5297771)									
EP2312522-010	0967_QC106_230911	ED093F: Calcium	7440-70-2	1	mg/L	16	20	19.7	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	24	25	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-008	0967_SW035_230911	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.73	0.75	2.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.30	1.20	7.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-005	0967_SW032_230911	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.17	0.16	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.49	0.46	5.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-008	0967_SW035_230911	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.21	0.20	5.3	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-005	0967_SW032_230911	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298626) - continued									
EP2312522-005	0967_SW032_230911	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	0967_SW035_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626) - continued									
EP2312521-011	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	0967_SW032_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	0967_SW035_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298626) - continued									
EP2312521-011	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	0967_SW032_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.04	0.04	0.0	No Limit
EP2312522-008	0967_SW035_230911	EP231X: Sum of PFAS	----	0.01	µg/L	2.51	2.40	4.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	2.03	1.95	4.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.40	2.29	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.05	0.05	0.0	No Limit
EP2312522-005	0967_SW032_230911	EP231X: Sum of PFAS	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.66	0.62	6.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5307374)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	115	85.1	126
				<1	200 mg/L	101	90.5	111
ED037P: Alkalinity by PC Titrator (QCLot: 5307375)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	85.1	126
				<1	200 mg/L	104	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298207)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.4	89.9	112
				<1	500 mg/L	96.4	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5298208)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	96.3	88.6	113
				<1	1000 mg/L	99.4	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5297770)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	103	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	84.6	108
ED093F: Dissolved Major Cations (QCLot: 5297771)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	97.2	72.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625) - continued								
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	88.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	88.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	96.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	89.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	100	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	134

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626) - continued								
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	94.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	88.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	90.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	94.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	95.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	87.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	86.7	64.2	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5298625)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5298626)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298207)							
EP2312522-001	0967_SW044_230911	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	129	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5298208)							
EP2312522-001	0967_SW044_230911	ED045G: Chloride	16887-00-6	1000 mg/L	92.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	107	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	97.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	96.6	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	0967_SW044_230911	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	96.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	109	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	74.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	84.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.7	73.0	142

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625) - continued							
EP2312521-005	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.9	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	110	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)							
EP2312522-001	0967_SW044_230911	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	91.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	94.5	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	97.7	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	101	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	99.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	95.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	102	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	99.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	91.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	93.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	88.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	94.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	104	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)							
EP2312522-001	0967_SW044_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	97.6	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626) - continued							
EP2312522-001	0967_SW044_230911	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	75.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	87.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	87.5	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	90.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	102	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	104	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	98.3	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	0967_SW044_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	98.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	103	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	92.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312522**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Site	: Pearce SW - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: pfas-omp Pearce	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**----**	----	----	**20-Sep-2023**	25-Sep-2023	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**----**	----	----	**22-Sep-2023**	09-Oct-2023	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**----**	----	----	**22-Sep-2023**	09-Oct-2023	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**----**	----	----	**18-Sep-2023**	18-Sep-2023	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW044_230911,	0967_QC101_230911,	**11-Sep-2023**	**14-Sep-2023**	09-Mar-2024	✓	**15-Sep-2023**	09-Mar-2024	✓
0967_SW020_230911,	0967_QC102_230911,							
0967_SW032_230911,	0967_QC103_230911,							
0967_SW034_230911,	0967_SW035_230911,							
0967_SW016_230911,	0967_QC106_230911							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALS Compass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312523

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 5713, 5716, 5716C # Samples: 28 samples + 1 Esky Sampler: Phone: [redacted]

Turnaround Requirements: Standard ✓ Urgent

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 11/09/23 ~2:30	Date / Time: 1215 12/9	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57161 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD044		11/09/2023 09:25 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD020		11/09/2023 09:59 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD032		11/09/2023 10:23 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD034		11/09/2023 11:27 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD035		11/09/2023 11:30 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57161 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD044	HDPE Soil Jar	200 mL	00621222068324	Grey	No	
002	0967_SD020	HDPE Soil Jar	200 mL	00621222068335	Grey	No	
003	0967_SD032	HDPE Soil Jar	200 mL	00621222068288	Grey	No	
004	0967_SD034	HDPE Soil Jar	200 mL	00621222068274	Grey	No	
005	0967_SD035	HDPE Soil Jar	200 mL	00621222068405	Grey	No	

Total Bottle Count: ALS: 5, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312523**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57161	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 12-Sep-2023 12:15	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2312523-001	11-Sep-2023 09:25	0967_SD044_230911	✓	✓
EP2312523-002	11-Sep-2023 09:59	0967_SD020_230911	✓	✓
EP2312523-003	11-Sep-2023 10:23	0967_SD032_230911	✓	✓
EP2312523-004	11-Sep-2023 11:27	0967_SD034_230911	✓	✓
EP2312523-005	11-Sep-2023 11:30	0967_SD035_230911	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312523**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023 12:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57161	Issue Date	: 20-Sep-2023 13:20
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: The LOR of particular analytes has been raised for some samples due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD044_230911	0967_SD020_230911	0967_SD032_230911	0967_SD034_230911	0967_SD035_230911
				Sampling date / time	11-Sep-2023 09:25	11-Sep-2023 09:59	11-Sep-2023 10:23	11-Sep-2023 11:27	11-Sep-2023 11:30
Compound	CAS Number	LOR	Unit		EP2312523-001	EP2312523-002	EP2312523-003	EP2312523-004	EP2312523-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**34.9**	**21.8**	**36.9**	**42.4**	**13.4**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0002**	**0.0004**	**0.0003**	**0.0017**	**0.0003**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0088**	**0.0051**	**0.0035**	**0.0411**	**0.0069**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	**0.0002**	**0.0004**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0003
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0003
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0003
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0007	<0.0005	<0.0005	<0.0007	<0.0007
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0003	<0.0003
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0007	<0.0005	<0.0005	<0.0007	<0.0007

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD044_230911	0967_SD020_230911	0967_SD032_230911	0967_SD034_230911	0967_SD035_230911
				Sampling date / time	11-Sep-2023 09:25	11-Sep-2023 09:59	11-Sep-2023 10:23	11-Sep-2023 11:27	11-Sep-2023 11:30
Compound	CAS Number	LOR	Unit		EP2312523-001	EP2312523-002	EP2312523-003	EP2312523-004	EP2312523-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0007	<0.0007
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0007	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0007	<0.0007
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0003
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0003	<0.0002	<0.0002	<0.0003	<0.0003
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0007	<0.0005	<0.0005	<0.0007	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0007	<0.0005	<0.0005	<0.0007	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0007	<0.0005	<0.0005	<0.0007	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0092**	**0.0055**	**0.0038**	**0.0430**	**0.0078**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0090**	**0.0055**	**0.0038**	**0.0428**	**0.0072**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0092**	**0.0055**	**0.0038**	**0.0430**	**0.0078**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**102**	**92.5**	**104**	**91.5**	**89.5**
13C8-PFOA	----	0.0002	%		**85.5**	**86.0**	**90.0**	**86.5**	**94.5**

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2312523**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57161	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5304965)									
EP2312523-001	0967_SD044_230911	EA055: Moisture Content	----	0.1	%	34.9	35.3	1.1	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298125) - continued									
EP2312491-001	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298125)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298125) - continued									
EP2312491-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312526-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298125)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	98.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.2	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	81.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	92.8	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	77.5	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298125)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	88.6	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298125)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.7	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.8	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	91.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	112	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	97.5	54.8	124
EP231P: PFAS Sums (QCLot: 5298125)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298125)							
EP2312523-001	0967_SD044_230911	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	91.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	104	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	83.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	83.2	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	119	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298125)							
EP2312523-001	0967_SD044_230911	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	88.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	98.8	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	90.2	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	98.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.1	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	102	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	106	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	102	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	100	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298125)							
EP2312523-001	0967_SD044_230911	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	98.5	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	101	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	122	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125)							
EP2312523-001	0967_SD044_230911	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	96.2	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	112	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	93.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	104	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312523**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 12-Sep-2023
Site	: Pearce SD - JS	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 5
Order number	: pfas-omp Pearce	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2312523--001	0967_SD044_230911	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**----**	----	----	**18-Sep-2023**	25-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**18-Sep-2023**	09-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**18-Sep-2023**	09-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) 0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**18-Sep-2023**	09-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**18-Sep-2023**	09-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD044_230911, 0967_SD020_230911, 0967_SD032_230911, 0967_SD034_230911, 0967_SD035_230911	**11-Sep-2023**	**18-Sep-2023**	09-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312633

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manage** [redacted]

Phone:

ALS Compass COC Reference: 57296 57293 57297 **# Samples:** 20 Samples 1 esky **Sampler:**

Phone:

Turnaround Requirements: Standard ✓ _____ Urgent _____

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 13/9/23 16:00	**Date / Time:** 13/9 1500	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

COC#: 57293 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW116		13/09/2023 08:40 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_MW150		13/09/2023 08:58 AM	WATER	ALS: 5 Non ALS: 0	No		X		
003	0967_MW149		13/09/2023 09:16 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_MW112		13/09/2023 10:46 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_QC107		13/09/2023 10:46 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_MW113		13/09/2023 11:01 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_QC108		13/09/2023 11:05 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 57293 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_MW146		13/09/2023 11:26 AM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_QC109		13/09/2023 11:26 AM	WATER	ALS: 3 Non ALS: 0	No		X		
010	0967_MW122S		13/09/2023 12:47 PM	WATER	ALS: 3 Non ALS: 0	No		X		
011	0967_QC111		13/09/2023 12:48 PM	WATER	ALS: 3 Non ALS: 0	No		X		
012	0967_MW122D		13/09/2023 12:55 PM	WATER	ALS: 5 Non ALS: 0	No		X		
013	0967_MW115		13/09/2023 01:19 PM	WATER	ALS: 3 Non ALS: 0	No		X		
014	0967_MW123S		13/09/2023 01:34 PM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

COC#: 57293 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS | **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0967_MW123D		13/09/2023 01:35 PM	WATER	ALS: 3 Non ALS: 0	No		X		
016	0967_QC301		13/09/2023 02:21 PM	WATER	ALS: 2 Non ALS: 0	No	X			
017	0967_QC302		13/09/2023 02:22 PM	WATER	ALS: 2 Non ALS: 0	No	X			
018	0967_QC401		13/09/2023 02:22 PM	WATER	ALS: 2 Non ALS: 0	No	X			
019	0967_QC402		13/09/2023 02:23 PM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

COC#: 57293 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW116	Clear Plastic Bottle - Natural	125 mL	00070822326929	Green	No	
001	0967_MW116	HDPE (no PTFE)	20 mL	00351221006054	Grey	No	
001	0967_MW116	HDPE (no PTFE)	20 mL	00351221005955	Grey	No	
002	0967_MW150	HDPE (no PTFE)	20 mL	00351221005852	Grey	No	
002	0967_MW150	HDPE (no PTFE)	20 mL	00351221005803	Grey	No	
002	0967_MW150	Clear Plastic Bottle - Natural	125 mL	00070822327042	Green	No	
002	0967_MW150	HDPE (no PTFE)	20 mL	00351221005970	Grey	No	
003	0967_MW149	HDPE (no PTFE)	20 mL	00351221006062	Grey	No	
003	0967_MW149	Clear Plastic Bottle - Natural	125 mL	00070522168069	Green	No	
003	0967_MW149	HDPE (no PTFE)	20 mL	00351221006050	Grey	No	
004	0967_MW112	HDPE (no PTFE)	20 mL	00351221006185	Grey	No	
004	0967_MW112	Clear Plastic Bottle - Natural	125 mL	00070522088369	Green	No	
004	0967_MW112	HDPE (no PTFE)	20 mL	00351221005839	Grey	No	
005	0967_QC107	HDPE (no PTFE)	20 mL	00351221005795	Grey	No	
005	0967_QC107	Clear Plastic Bottle - Natural	125 mL	00070522088321	Green	No	
005	0967_QC107	HDPE (no PTFE)	20 mL	00351221006203	Grey	No	
006	0967_MW113	HDPE (no PTFE)	20 mL	00351221005948	Grey	No	
006	0967_MW113	Clear Plastic Bottle - Natural	125 mL	00070522167804	Green	No	
006	0967_MW113	HDPE (no PTFE)	20 mL	00351221006224	Grey	No	
007	0967_QC108	HDPE (no PTFE)	20 mL	00351221006176	Grey	No	
007	0967_QC108	Clear Plastic Bottle - Natural	125 mL	00070522167951	Green	No	
007	0967_QC108	HDPE (no PTFE)	20 mL	00351221005829	Grey	No	
008	0967_MW146	HDPE (no PTFE)	20 mL	00351221005890	Grey	No	
008	0967_MW146	Clear Plastic Bottle - Natural	125 mL	00070522167921	Green	No	
008	0967_MW146	HDPE (no PTFE)	20 mL	00351221005924	Grey	No	
		HDPE (no PTFE)	20 mL	00351221006043	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 57293 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_QC109	HDPE (no PTFE)	20 mL	00351221006299	Grey	No	
009	0967_QC109	Clear Plastic Bottle - Natural	125 mL	00070522167765	Green	No	
009	0967_QC109	HDPE (no PTFE)	20 mL	00351221005789	Grey	No	
010	0967_MW122S	Clear Plastic Bottle - Natural	125 mL	00070522168026	Green	No	
010	0967_MW122S	HDPE (no PTFE)	20 mL	00351221006075	Grey	No	
010	0967_MW122S	HDPE (no PTFE)	20 mL	00351221005876	Grey	No	
011	0967_QC111	HDPE (no PTFE)	20 mL	00351221005873	Grey	No	
011	0967_QC111	Clear Plastic Bottle - Natural	125 mL	00070522168027	Green	No	
011	0967_QC111	HDPE (no PTFE)	20 mL	00351221005826	Grey	No	
012	0967_MW122D	Clear Plastic Bottle - Natural	125 mL	00070522167889	Green	No	
012	0967_MW122D	HDPE (no PTFE)	20 mL	00351221005964	Grey	No	
012	0967_MW122D	HDPE (no PTFE)	20 mL	00351221005755	Grey	No	
012	0967_MW122D	HDPE (no PTFE)	20 mL	00350822058821	Grey	No	
012	0967_MW122D	HDPE (no PTFE)	20 mL	00350822058936	Grey	No	
013	0967_MW115	Clear Plastic Bottle - Natural	125 mL	00070522167681	Green	No	
013	0967_MW115	HDPE (no PTFE)	20 mL	00351221005984	Grey	No	
013	0967_MW115	HDPE (no PTFE)	20 mL	00351221006115	Grey	No	
014	0967_MW123S	Clear Plastic Bottle - Natural	125 mL	00070522167794	Green	No	
014	0967_MW123S	HDPE (no PTFE)	20 mL	00351221005855	Grey	No	
014	0967_MW123S	HDPE (no PTFE)	20 mL	00351221006276	Grey	No	
015	0967_MW123D	Clear Plastic Bottle - Natural	125 mL	00070522167990	Green	No	
015	0967_MW123D	HDPE (no PTFE)	20 mL	00351221006230	Grey	No	
015	0967_MW123D	HDPE (no PTFE)	20 mL	00351221006244	Grey	No	
016	0967_QC301	HDPE (no PTFE)	20 mL	00351221005838	Grey	No	
016	0967_QC301	HDPE (no PTFE)	20 mL	00351221006057	Grey	No	
017	0967_QC302	HDPE (no PTFE)	20 mL	00351221005893	Grey	No	
017	0967_QC302	HDPE (no PTFE)	20 mL	00351221005877	Grey	No	

CHAIN OF CUSTODY

COC#: 57293 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted]

/ ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

018	0967_QC401	HDPE (no PTFE)	20 mL	00350822058781	Grey	No	
018	0967_QC401	HDPE (no PTFE)	20 mL	00350822058941	Grey	No	
019	0967_QC402	HDPE (no PTFE)	20 mL	00351221006219	Grey	No	
019	0967_QC402	HDPE (no PTFE)	20 mL	00351221006030	Grey	No	

Total Bottle Count: ALS: 57, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312633**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 3
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57293	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 13-Sep-2023 15:00	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 6.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 19 / 19

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312633-001	13-Sep-2023 08:40	0967_MW116_230913	✓	✓
EP2312633-002	13-Sep-2023 08:58	0967_MW150_230913	✓	✓
EP2312633-003	13-Sep-2023 09:16	0967_MW149_230913	✓	✓
EP2312633-004	13-Sep-2023 10:46	0967_MW112_230913	✓	✓
EP2312633-005	13-Sep-2023 10:46	0967_QC107_230913	✓	✓
EP2312633-006	13-Sep-2023 11:01	0967_MW113_230913	✓	✓
EP2312633-007	13-Sep-2023 11:05	0967_QC108_230913	✓	✓
EP2312633-008	13-Sep-2023 11:26	0967_MW146_230913	✓	✓
EP2312633-009	13-Sep-2023 11:26	0967_QC109_230913	✓	✓
EP2312633-010	13-Sep-2023 12:47	0967_MW122S_230913	✓	✓
EP2312633-011	13-Sep-2023 12:48	0967_QC111_230913	✓	✓
EP2312633-012	13-Sep-2023 12:55	0967_MW122D_230913	✓	✓
EP2312633-013	13-Sep-2023 13:19	0967_MW115_230913	✓	✓
EP2312633-014	13-Sep-2023 13:34	0967_MW123S_230913	✓	✓
EP2312633-015	13-Sep-2023 13:35	0967_MW123D_230913	✓	✓
EP2312633-016	13-Sep-2023 14:21	0967_QC301_230913	✓	
EP2312633-017	13-Sep-2023 14:22	0967_QC302_230913	✓	
EP2312633-018	13-Sep-2023 14:22	0967_QC401_230913	✓	
EP2312633-019	13-Sep-2023 14:23	0967_QC402_230913	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312633**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023 15:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57293	Issue Date	: 22-Sep-2023 17:08
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 19		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Ionic Balance out of acceptable limits for sample #6 due to analytes not quantified in this report. Major cations (ED093F) have been confirmed by re-analysis.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW116_230913	0967_MW150_230913	0967_MW149_230913	0967_MW112_230913	0967_QC107_230913
				Sampling date / time	13-Sep-2023 08:40	13-Sep-2023 08:58	13-Sep-2023 09:16	13-Sep-2023 10:46	13-Sep-2023 10:46
Compound	CAS Number	LOR	Unit		EP2312633-001	EP2312633-002	EP2312633-003	EP2312633-004	EP2312633-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		7	123	51	26	16
Total Alkalinity as CaCO3	----	1	mg/L		7	123	51	26	16
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		149	117	98	80	82
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		1600	621	1390	1230	1230
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		40	42	38	43	43
Magnesium	7439-95-4	1	mg/L		134	28	146	114	114
Sodium	7440-23-5	1	mg/L		802	326	629	529	536
Potassium	7440-09-7	1	mg/L		12	8	17	11	11
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		48.4	22.4	42.3	36.9	36.7
ø Total Cations	----	0.01	meq/L		48.2	18.8	41.7	34.8	35.1
ø Ionic Balance	----	0.01	%		0.16	8.80	0.67	2.88	2.23
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	0.14	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	0.16	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	1.29	0.03	0.06	0.06
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	0.07	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	0.96	0.25	0.13	0.13
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	0.03	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	0.22	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW116_230913	0967_MW150_230913	0967_MW149_230913	0967_MW112_230913	0967_QC107_230913
				Sampling date / time	13-Sep-2023 08:40	13-Sep-2023 08:58	13-Sep-2023 09:16	13-Sep-2023 10:46	13-Sep-2023 10:46
Compound	CAS Number	LOR	Unit		EP2312633-001	EP2312633-002	EP2312633-003	EP2312633-004	EP2312633-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.02**	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.05**	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW116_230913	0967_MW150_230913	0967_MW149_230913	0967_MW112_230913	0967_QC107_230913
				Sampling date / time	13-Sep-2023 08:40	13-Sep-2023 08:58	13-Sep-2023 09:16	13-Sep-2023 10:46	13-Sep-2023 10:46
Compound	CAS Number	LOR	Unit		EP2312633-001	EP2312633-002	EP2312633-003	EP2312633-004	EP2312633-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**2.94**	**0.28**	**0.19**	**0.19**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**2.25**	**0.28**	**0.19**	**0.19**
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**2.71**	**0.28**	**0.19**	**0.19**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**97.0**	**99.8**	**102**	**101**
13C8-PFOA	----	0.02	%		**100**	**95.1**	**98.2**	**96.5**	**98.6**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW113_230913	0967_QC108_230913	0967_MW146_230913	0967_QC109_230913	0967_MW122S_230913
				Sampling date / time	13-Sep-2023 11:01	13-Sep-2023 11:05	13-Sep-2023 11:26	13-Sep-2023 11:26	13-Sep-2023 12:47
Compound	CAS Number	LOR	Unit		EP2312633-006	EP2312633-007	EP2312633-008	EP2312633-009	EP2312633-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		99	83	16	26	50
Total Alkalinity as CaCO3	----	1	mg/L		99	83	16	26	50
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		40	46	88	93	82
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		475	562	1280	1210	568
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		25	26	40	39	16
Magnesium	7439-95-4	1	mg/L		34	42	79	77	43
Sodium	7440-23-5	1	mg/L		209	238	624	608	256
Potassium	7440-09-7	1	mg/L		4	5	5	5	6
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		16.2	18.5	38.2	36.6	18.7
ø Total Cations	----	0.01	meq/L		13.2	15.2	35.8	34.8	15.6
ø Ionic Balance	----	0.01	%		10.1	9.60	3.36	2.42	9.03
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		0.05	0.05	<0.02	<0.02	0.06
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.05	0.05	<0.02	<0.02	0.10
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.31	0.30	0.08	0.10	1.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	0.04	0.05	0.03
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.19	0.18	0.01	0.02	0.05
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.05	0.05	<0.02	<0.02	0.11

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW113_230913	0967_QC108_230913	0967_MW146_230913	0967_QC109_230913	0967_MW122S_230913
				Sampling date / time	13-Sep-2023 11:01	13-Sep-2023 11:05	13-Sep-2023 11:26	13-Sep-2023 11:26	13-Sep-2023 12:47
Compound	CAS Number	LOR	Unit		EP2312633-006	EP2312633-007	EP2312633-008	EP2312633-009	EP2312633-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.01**	**0.01**	<0.01	<0.01	**0.02**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW113_230913	0967_QC108_230913	0967_MW146_230913	0967_QC109_230913	0967_MW122S_230913
				Sampling date / time	13-Sep-2023 11:01	13-Sep-2023 11:05	13-Sep-2023 11:26	13-Sep-2023 11:26	13-Sep-2023 12:47
Compound	CAS Number	LOR	Unit		EP2312633-006	EP2312633-007	EP2312633-008	EP2312633-009	EP2312633-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.66**	**0.64**	**0.13**	**0.17**	**1.38**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.50**	**0.48**	**0.09**	**0.12**	**1.06**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.61**	**0.59**	**0.09**	**0.12**	**1.25**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**106**	**94.6**	**96.0**	**99.3**	**98.2**
13C8-PFOA	----	0.02	%		**97.6**	**97.4**	**100**	**101**	**92.3**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0967_QC111_230913	0967_MW122D_230913	0967_MW115_230913	0967_MW123S_230913	0967_MW123D_230913
				Sampling date / time	13-Sep-2023 12:48	13-Sep-2023 12:55	13-Sep-2023 13:19	13-Sep-2023 13:34	13-Sep-2023 13:35
					EP2312633-011	EP2312633-012	EP2312633-013	EP2312633-014	EP2312633-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**50**	**343**	**16**	**154**	**333**
Total Alkalinity as CaCO3	----	1	mg/L		**50**	**343**	**16**	**154**	**333**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**78**	**20**	**70**	**132**	**27**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**534**	**439**	**596**	**1890**	**700**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**16**	**47**	**8**	**70**	**91**
Magnesium	7439-95-4	1	mg/L		**44**	**30**	**32**	**154**	**56**
Sodium	7440-23-5	1	mg/L		**261**	**284**	**318**	**821**	**377**
Potassium	7440-09-7	1	mg/L		**6**	**14**	**3**	**15**	**12**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**17.7**	**19.6**	**18.6**	**59.1**	**27.0**
ø Total Cations	----	0.01	meq/L		**15.9**	**17.5**	**16.9**	**52.3**	**25.8**
ø Ionic Balance	----	0.01	%		**5.24**	**5.72**	**4.64**	**6.17**	**2.09**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.06**	<0.02	<0.02	<0.02	**0.04**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.10**	<0.02	<0.02	<0.02	**0.03**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**1.04**	<0.01	**0.01**	<0.01	**0.26**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.03**	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.05**	**0.01**	<0.01	**0.02**	**0.20**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.12**	<0.02	<0.02	<0.02	**0.04**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC111_230913	0967_MW122D_230913	0967_MW115_230913	0967_MW123S_230913	0967_MW123D_230913
				Sampling date / time	13-Sep-2023 12:48	13-Sep-2023 12:55	13-Sep-2023 13:19	13-Sep-2023 13:34	13-Sep-2023 13:35
Compound	CAS Number	LOR	Unit		EP2312633-011	EP2312633-012	EP2312633-013	EP2312633-014	EP2312633-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC111_230913	0967_MW122D_230913	0967_MW115_230913	0967_MW123S_230913	0967_MW123D_230913
				Sampling date / time	13-Sep-2023 12:48	13-Sep-2023 12:55	13-Sep-2023 13:19	13-Sep-2023 13:34	13-Sep-2023 13:35
Compound	CAS Number	LOR	Unit		EP2312633-011	EP2312633-012	EP2312633-013	EP2312633-014	EP2312633-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.42**	**0.01**	**0.01**	**0.02**	**0.57**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.09**	**0.01**	**0.01**	**0.02**	**0.46**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.29**	**0.01**	**0.01**	**0.02**	**0.54**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.5**	**93.4**	**98.1**	**101**	**96.3**
13C8-PFOA	----	0.02	%		**99.6**	**102**	**98.5**	**102**	**96.8**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC301_230913	0967_QC302_230913	0967_QC401_230913	0967_QC402_230913	----
				Sampling date / time	13-Sep-2023 14:21	13-Sep-2023 14:22	13-Sep-2023 14:22	13-Sep-2023 14:23	----
Compound	CAS Number	LOR	Unit		EP2312633-016	EP2312633-017	EP2312633-018	EP2312633-019	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC301_230913	0967_QC302_230913	0967_QC401_230913	0967_QC402_230913	----
				Sampling date / time	13-Sep-2023 14:21	13-Sep-2023 14:22	13-Sep-2023 14:22	13-Sep-2023 14:23	----
Compound	CAS Number	LOR	Unit		EP2312633-016	EP2312633-017	EP2312633-018	EP2312633-019	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.5**	**96.1**	**96.1**	**95.0**	----
13C8-PFOA	----	0.02	%		**97.5**	**94.0**	**101**	**103**	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312633**	Page	: 1 of 14
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57293	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 19		
No. of samples analysed	: 19		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5307378)									
EP2312633-002	0967_MW150_230913	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	123	123	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	123	123	0.0	0% - 20%
EP2312633-012	0967_MW122D_230913	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	343	350	1.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	343	350	1.9	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5298207)									
EP2312522-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	32	33	4.6	0% - 20%
EP2312633-001	0967_MW116_230913	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	149	147	1.4	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5298906)									
EP2312633-011	0967_QC111_230913	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	78	73	7.6	0% - 20%
EP2312702-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	702	799	13.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5298208)									
EP2312522-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	208	205	1.7	0% - 20%
EP2312633-001	0967_MW116_230913	ED045G: Chloride	16887-00-6	1	mg/L	1600	1530	4.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5298907)									
EP2312633-011	0967_QC111_230913	ED045G: Chloride	16887-00-6	1	mg/L	534	537	0.6	0% - 20%
EP2312702-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1050	1070	1.5	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5304707)									
EP2312633-001	0967_MW116_230913	ED093F: Calcium	7440-70-2	1	mg/L	40	40	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	134	132	2.1	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5304707) - continued									
EP2312633-001	0967_MW116_230913	ED093F: Sodium	7440-23-5	1	mg/L	802	789	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EP2312633-011	0967_QC111_230913	ED093F: Calcium	7440-70-2	1	mg/L	16	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	44	44	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	261	264	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.73	0.75	2.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.30	1.20	7.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.17	0.16	0.0	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.49	0.46	5.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625) - continued									
EP2312521-002	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.21	0.20	5.3	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.01	0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625) - continued									
EP2312521-002	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298626) - continued									
EP2312522-005	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298626) - continued									
EP2312522-005	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.04	0.04	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.51	2.40	4.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	2.03	1.95	4.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.40	2.29	4.7	0% - 20%
EP231P: PFAS Sums (QC Lot: 5298626)									
EP2312521-011	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.05	0.05	0.0	No Limit
EP2312522-005	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.66	0.62	6.2	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.71	0.67	5.8	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5307378)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	116	85.1	126
				<1	200 mg/L	104	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298207)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.4	89.9	112
				<1	500 mg/L	96.4	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298906)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	94.5	89.9	112
				<1	500 mg/L	106	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5298208)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	96.3	88.6	113
				<1	1000 mg/L	99.4	88.6	113
ED045G: Chloride by Discrete Analyser (QCLot: 5298907)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	103	88.6	113
				<1	1000 mg/L	103	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5304707)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.9	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.9	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	97.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.5	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626) - continued								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	88.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	88.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	96.8	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	89.8	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298627)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	84.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	94.5	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.2	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	93.8	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	100	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.5	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626) - continued								
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298627)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.4	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	89.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	98.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	91.4	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	94.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	88.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298627)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	90.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	94.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	93.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	89.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	99.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	90.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.0	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	94.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	95.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	87.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	86.7	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298627)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	95.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	102	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	99.4	64.2	133
EP231P: PFAS Sums (QCLot: 5298625)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5298626)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5298627)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298207)							
EP2312522-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	129	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298906)							
EP2312633-011	0967_QC111_230913	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	125	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5298208)							
EP2312522-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	92.0	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5298907)							
EP2312633-011	0967_QC111_230913	ED045G: Chloride	16887-00-6	1000 mg/L	104	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	107	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	97.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	96.6	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	96.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	109	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298626) - continued							
EP2312522-001	Anonymous	EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	105	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	74.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	84.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.7	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.9	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	110	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	91.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	94.5	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	97.7	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	101	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.3	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	99.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	95.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.8	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	102	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	99.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	91.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	93.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	88.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	94.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	104	65.0	136

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625) - continued							
EP2312521-005	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	97.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	75.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	87.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	87.5	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	90.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	102	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	104	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	98.3	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298626)							
EP2312522-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	98.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	103	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	92.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312633**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Site	: Pearce GW - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 19
Order number	: pfas-omp Pearce	No. of samples analysed	: 19

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	4				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	4	44	9.09	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	44	4.55	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW116_230913, 0967_MW150_230913, 0967_MW149_230913, 0967_MW112_230913, 0967_QC107_230913, 0967_MW113_230913, 0967_QC108_230913, 0967_MW146_230913, 0967_QC109_230913, 0967_MW122S_230913, 0967_QC111_230913, 0967_MW122D_230913, 0967_MW115_230913, 0967_MW123S_230913, 0967_MW123D_230913	**13-Sep-2023**	**----**	----	----	**20-Sep-2023**	27-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_QC111_230913, 0967_MW122D_230913, 0967_MW115_230913, 0967_MW123S_230913, 0967_MW123D_230913	**13-Sep-2023**	**----**	----	----	**21-Sep-2023**	11-Oct-2023	✓
Clear Plastic Bottle - Natural (ED041G)							
0967_MW116_230913, 0967_MW150_230913, 0967_MW149_230913, 0967_MW112_230913, 0967_QC107_230913, 0967_MW113_230913, 0967_QC108_230913, 0967_MW146_230913, 0967_QC109_230913, 0967_MW122S_230913	**13-Sep-2023**	**----**	----	----	**22-Sep-2023**	11-Oct-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_QC111_230913, 0967_MW122D_230913, 0967_MW115_230913, 0967_MW123S_230913, 0967_MW123D_230913	**13-Sep-2023**	**----**	----	----	**21-Sep-2023**	11-Oct-2023	✓
Clear Plastic Bottle - Natural (ED045G)							
0967_MW116_230913, 0967_MW150_230913, 0967_MW149_230913, 0967_MW112_230913, 0967_QC107_230913, 0967_MW113_230913, 0967_QC108_230913, 0967_MW146_230913, 0967_QC109_230913, 0967_MW122S_230913	**13-Sep-2023**	**----**	----	----	**22-Sep-2023**	11-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW116_230913, 0967_MW150_230913, 0967_MW149_230913, 0967_MW112_230913, 0967_QC107_230913, 0967_MW113_230913, 0967_QC108_230913, 0967_MW146_230913, 0967_QC109_230913, 0967_MW122S_230913, 0967_QC111_230913, 0967_MW122D_230913, 0967_MW115_230913, 0967_MW123S_230913, 0967_MW123D_230913	**13-Sep-2023**	**----**	----	----	**20-Sep-2023**	20-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW116_230913, 0967_MW150_230913, 0967_MW149_230913, 0967_MW112_230913, 0967_QC107_230913, 0967_MW113_230913, 0967_QC108_230913, 0967_MW146_230913, 0967_QC109_230913, 0967_MW122S_230913, 0967_QC111_230913, 0967_MW122D_230913, 0967_MW115_230913, 0967_MW123S_230913, 0967_MW123D_230913, 0967_QC301_230913, 0967_QC302_230913, 0967_QC401_230913, 0967_QC402_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW116_230913, 0967_MW149_230913, 0967_QC107_230913, 0967_QC108_230913, 0967_QC109_230913, 0967_QC111_230913, 0967_MW115_230913, 0967_MW123D_230913, 0967_QC302_230913, 0967_QC402_230913, 0967_MW150_230913, 0967_MW112_230913, 0967_MW113_230913, 0967_MW146_230913, 0967_MW122S_230913, 0967_MW122D_230913, 0967_MW123S_230913, 0967_QC301_230913, 0967_QC401_230913,	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_MW116_230913, 0967_MW149_230913, 0967_QC107_230913, 0967_QC108_230913, 0967_QC109_230913, 0967_QC111_230913, 0967_MW115_230913, 0967_MW123D_230913, 0967_QC302_230913, 0967_QC402_230913, 0967_MW150_230913, 0967_MW112_230913, 0967_MW113_230913, 0967_MW146_230913, 0967_MW122S_230913, 0967_MW122D_230913, 0967_MW123S_230913, 0967_QC301_230913, 0967_QC401_230913,	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW116_230913, 0967_MW149_230913, 0967_QC107_230913, 0967_QC108_230913, 0967_QC109_230913, 0967_QC111_230913, 0967_MW115_230913, 0967_MW123D_230913, 0967_QC302_230913, 0967_QC402_230913, 0967_MW150_230913, 0967_MW112_230913, 0967_MW113_230913, 0967_MW146_230913, 0967_MW122S_230913, 0967_MW122D_230913, 0967_MW123S_230913, 0967_QC301_230913, 0967_QC401_230913,	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_MW116_230913, 0967_MW149_230913, 0967_QC107_230913, 0967_QC108_230913, 0967_QC109_230913, 0967_QC111_230913, 0967_MW115_230913, 0967_MW123D_230913, 0967_QC302_230913, 0967_QC402_230913, 0967_MW150_230913, 0967_MW112_230913, 0967_MW113_230913, 0967_MW146_230913, 0967_MW122S_230913, 0967_MW122D_230913, 0967_MW123S_230913, 0967_QC301_230913, 0967_QC401_230913,	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	4	44	**9.09**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	44	**4.55**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312634

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec

Project Manag [redacted]
Phone:

ALS Compass COC Reference: ~~57248~~ ~~57293~~ 57297 **# Samples:** 20 Samples, 1 esky

Sampler:
Phone:

Turnaround Requirements: (Standard ✓) _____ Urgent _____

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 13/9/23 16:00	Date / Time: 13/9 1500	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57297 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW046		13/09/2023 09:17 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW025		13/09/2023 12:28 PM	WATER	ALS: 5 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57297 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW046	Clear Plastic Bottle - Natural	125 mL	00070522168080	Green	No	
001	0967_SW046	HDPE (no PTFE)	20 mL	00351221006135	Grey	No	
001	0967_SW046	HDPE (no PTFE)	20 mL	00351221005853	Grey	No	
002	0967_SW025	HDPE (no PTFE)	20 mL	00351221006087	Grey	No	
002	0967_SW025	HDPE (no PTFE)	20 mL	00351221006289	Grey	No	
002	0967_SW025	HDPE (no PTFE)	20 mL	00350822058864	Grey	No	
002	0967_SW025	HDPE (no PTFE)	20 mL	00350822058793	Grey	No	
002	0967_SW025	Clear Plastic Bottle - Natural	125 mL	00070522167778	Green	No	

Total Bottle Count: ALS: 8, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312634**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57297	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 13-Sep-2023 15:00	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 6.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312634-001	13-Sep-2023 09:17	0967_SW046_230913	✓	✓
EP2312634-002	13-Sep-2023 12:28	0967_SW025_230913	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312634**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023 15:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57297	Issue Date	: 22-Sep-2023 12:21
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- ED041G (Sulfate Turbidimetric): LOR for sample EP2312634-002 raised due to possible sample matrix interference.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW046_230913	0967_SW025_230913	----	----	----
				Sampling date / time	13-Sep-2023 09:17	13-Sep-2023 12:28	----	----	----
Compound	CAS Number	LOR	Unit		EP2312634-001	EP2312634-002	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**89**	**12**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**89**	**12**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**28**	<5	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**141**	**10**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**21**	**2**	----	----	----
Magnesium	7439-95-4	1	mg/L		**13**	<1	----	----	----
Sodium	7440-23-5	1	mg/L		**82**	**9**	----	----	----
Potassium	7440-09-7	1	mg/L		**6**	**2**	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**6.34**	**0.52**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**5.84**	**0.54**	----	----	----
ø **Ionic Balance**	----	0.01	%		**4.11**	**1.93**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	**0.20**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.09**	**0.86**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**0.03**	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW046_230913	0967_SW025_230913	----	----	----
				Sampling date / time	13-Sep-2023 09:17	13-Sep-2023 12:28	----	----	----
Compound	CAS Number	LOR	Unit		EP2312634-001	EP2312634-002	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**0.01**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW046_230913	0967_SW025_230913	----	----	----
				Sampling date / time	13-Sep-2023 09:17	13-Sep-2023 12:28	----	----	----
Compound	CAS Number	LOR	Unit		EP2312634-001	EP2312634-002	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.10**	**1.10**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.10**	**1.06**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.10**	**1.10**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.7**	**92.7**	----	----	----
13C8-PFOA	----	0.02	%		**96.6**	**96.7**	----	----	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312634**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
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Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 14-Sep-2023
C-O-C number	: 57297	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5307378)									
EP2312633-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	123	123	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	123	123	0.0	0% - 20%
EP2312633-012	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	343	350	1.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	343	350	1.9	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5298913)									
EP2312634-001	0967_SW046_230913	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	28	28	0.0	0% - 20%
EP2312721-009	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	125	124	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5298914)									
EP2312634-001	0967_SW046_230913	ED045G: Chloride	16887-00-6	1	mg/L	141	144	2.1	0% - 20%
EP2312721-009	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	168	167	0.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5304707)									
EP2312633-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	40	40	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	134	132	2.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	802	789	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EP2312633-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	16	17	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	44	44	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	261	264	1.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.73	0.75	2.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.30	1.20	7.7	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.06	0.06	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.08	0.08	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.21	0.20	5.3	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298625) - continued									
EP2312521-002	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298625)									
EP2312521-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2312522-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298625)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 5298625) - continued									
EP2312521-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.04	0.04	0.0	No Limit
EP2312522-008	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.51	2.40	4.5	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	2.03	1.95	4.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.40	2.29	4.7	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5307378)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	116	85.1	126
				<1	200 mg/L	104	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298913)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	95.5	89.9	112
				<1	500 mg/L	95.0	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5298914)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	95.5	88.6	113
				<1	1000 mg/L	99.4	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5304707)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.9	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.9	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	97.2	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	102	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	87.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	89.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	93.4	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	103	69.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	100	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	94.5	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.8	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	95.2	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	90.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	99.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	104	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	90.0	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.0	64.2	133
EP231P: PFAS Sums (QCLot: 5298625)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5298913)							
EP2312634-001	0967_SW046_230913	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	128	70.4	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5298914)							
EP2312634-001	0967_SW046_230913	ED045G: Chloride	16887-00-6	1000 mg/L	93.3	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.1	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	107	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	97.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	96.6	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	95.7	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	96.9	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	93.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	104	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	110	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	106	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	93.4	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.0	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	88.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	94.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	104	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	106	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298625)							
EP2312521-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	102	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	106	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	104	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	98.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312634**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Site	: Pearce SW - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**----**	----	**----**	**20-Sep-2023**	27-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**----**	----	**----**	**22-Sep-2023**	11-Oct-2023	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**----**	----	**----**	**22-Sep-2023**	11-Oct-2023	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Natural (ED093F)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**----**	----	**----**	**20-Sep-2023**	20-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_SW046_230913,	0967_SW025_230913	**13-Sep-2023**	**14-Sep-2023**	11-Mar-2024	✓	**15-Sep-2023**	11-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312635

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: 57296 57295 57297 **# Samples:** 20 Samples, 1 esky **Sampler:** [redacted]
Phone:

Turnaround Requirements: (Standard ✓) _____ Urgent _____

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	[redacted]		
Date / Time: 13/9/23 16:00	Date / Time: 13/9 1500	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57298 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD046		13/09/2023 09:17 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD025		13/09/2023 12:27 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_QC110		13/09/2023 12:27 PM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57298 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD046	HDPE Soil Jar	200 mL	00621222068270	Grey	No	
002	0967_SD025	HDPE Soil Jar	200 mL	00621222068298	Grey	No	
003	0967_QC110	HDPE Soil Jar	200 mL	00621222068316	Grey	No	

Total Bottle Count: ALS: 3, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312635**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57298	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 13-Sep-2023 15:00	Issue Date	: 14-Sep-2023
Client Requested Due Date	: 22-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 6.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2312635-001	13-Sep-2023 09:17	0967_SD046_230913	✓	✓
EP2312635-002	13-Sep-2023 12:27	0967_SD025_230913	✓	✓
EP2312635-003	13-Sep-2023 12:27	0967_QC110_230913	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312635**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023 15:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57298	Issue Date	: 22-Sep-2023 09:54
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: The LOR of particular analytes has been raised for sample EP2312635-001 due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD046_230913	0967_SD025_230913	0967_QC110_230913	----	----
				Sampling date / time	13-Sep-2023 09:17	13-Sep-2023 12:27	13-Sep-2023 12:27	----	----
Compound	CAS Number	LOR	Unit		EP2312635-001	EP2312635-002	EP2312635-003	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**25.0**	**54.7**	**68.5**	**----**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	**0.0040**	**0.0017**	**----**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	**0.0008**	**0.0002**	**----**	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0009**	**0.0959**	**0.0326**	**----**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	**----**	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	**0.0005**	**0.0003**	**----**	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	**0.0003**	<0.0002	**----**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0009	<0.0002	<0.0002	**----**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0009	<0.0002	<0.0002	**----**	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0009	<0.0002	<0.0002	**----**	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	**----**	**----**
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	**----**	**----**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD046_230913	0967_SD025_230913	0967_QC110_230913	----	----
				Sampling date / time	13-Sep-2023 09:17	13-Sep-2023 12:27	13-Sep-2023 12:27	----	----
Compound	CAS Number	LOR	Unit		EP2312635-001	EP2312635-002	EP2312635-003	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0009	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0009	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0009**	**0.102**	**0.0348**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0009**	**0.0999**	**0.0343**	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0009**	**0.101**	**0.0346**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**92.0**	**89.5**	**89.0**	----	----
13C8-PFOA	----	0.0002	%		**104**	**93.0**	**94.5**	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2312635**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57298	Issue Date	: 22-Sep-2023
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5304965)									
EP2312523-001	Anonymous	EA055: Moisture Content	----	0.1	%	34.9	35.3	1.1	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5298125) - continued									
EP2312491-001	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298125)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5298125) - continued									
EP2312491-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312526-005	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5298125)									
EP2312491-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312526-005	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298125)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	98.6	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	93.2	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	81.8	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	92.8	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	88.8	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	77.5	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298125)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	88.6	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	103	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298125)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	94.7	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.8	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.6	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	91.0	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	112	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	97.5	54.8	124
EP231P: PFAS Sums (QCLot: 5298125)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5298125)							
EP2312523-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	91.8	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	104	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	83.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	83.2	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	119	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5298125)							
EP2312523-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	88.4	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	98.8	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	90.2	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	98.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	98.1	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	102	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	108	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	106	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	102	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	100	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5298125)							
EP2312523-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	100	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	98.5	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	101	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	122	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	100	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	104	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	98.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5298125)							
EP2312523-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	96.2	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	112	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	93.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	104	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312635**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 13-Sep-2023
Site	: Pearce SD - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted]	No. of samples received	: 3
Order number	: pfas-omp Pearce	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2312523--001	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**----**	----	**----**	**18-Sep-2023**	27-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**18-Sep-2023**	11-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**18-Sep-2023**	11-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**18-Sep-2023**	11-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**18-Sep-2023**	11-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X)								
0967_SD046_230913, 0967_QC110_230913	0967_SD025_230913,	**13-Sep-2023**	**18-Sep-2023**	11-Mar-2024	✓	**18-Sep-2023**	28-Oct-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312710

9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASDMP_16Z **Client:** Stantec **Project Manage** [redacted]

Phone:

ALS Compass COC Reference: 57351; 57355 **# Samples:** **Sampler:**

57366; 57352; 57350; 57364; 57359; 57353; 57382 **Phone:**

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquis [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/09/23 @ 2150pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57350 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW114		14/09/2023 08:12 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_MW137		14/09/2023 10:43 AM	WATER	ALS: 5 Non ALS: 0	No	X		
003	0967_MW136		14/09/2023 11:03 AM	WATER	ALS: 5 Non ALS: 0	No	X		
004	0967_MW125S		14/09/2023 01:03 PM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_MW125D		14/09/2023 01:04 PM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_MW126		14/09/2023 02:16 PM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57350 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW114	Clear Plastic Bottle - Natural	125 mL	00070522167914	Green	No	
001	0967_MW114	HDPE (no PTFE)	20 mL	00351221006227	Grey	No	
001	0967_MW114	HDPE (no PTFE)	20 mL	00351221006205	Grey	No	
002	0967_MW137	HDPE (no PTFE)	20 mL	00350822054532	Grey	No	
002	0967_MW137	HDPE (no PTFE)	20 mL	00350822055060	Grey	No	
002	0967_MW137	HDPE (no PTFE)	20 mL	00351221006197	Grey	No	
002	0967_MW137	HDPE (no PTFE)	20 mL	00351221006198	Grey	No	
002	0967_MW137	Clear Plastic Bottle - Natural	125 mL	00070522168060	Green	No	
003	0967_MW136	HDPE (no PTFE)	20 mL	00351221006086	Grey	No	
003	0967_MW136	HDPE (no PTFE)	20 mL	00351221006249	Grey	No	
003	0967_MW136	Clear Plastic Bottle - Natural	125 mL	00070522167802	Green	No	
003	0967_MW136	HDPE (no PTFE)	20 mL	00351221005781	Grey	No	
003	0967_MW136	HDPE (no PTFE)	20 mL	00351221005712	Grey	No	
004	0967_MW125S	Clear Plastic Bottle - Natural	125 mL	00070522068760	Green	No	
004	0967_MW125S	HDPE (no PTFE)	20 mL	00350822007829	Grey	No	
004	0967_MW125S	HDPE (no PTFE)	20 mL	00350822007944	Grey	No	
005	0967_MW125D	Clear Plastic Bottle - Natural	125 mL	00070522068901	Green	No	
005	0967_MW125D	HDPE (no PTFE)	20 mL	00350822007975	Grey	No	
005	0967_MW125D	HDPE (no PTFE)	20 mL	00350822008000	Grey	No	
006	0967_MW126	HDPE (no PTFE)	20 mL	00351221006243	Grey	No	
006	0967_MW126	HDPE (no PTFE)	20 mL	00351221005940	Grey	No	
006	0967_MW126	Clear Plastic Bottle - Natural	125 mL	00070522168055	Green	No	

Total Bottle Count: ALS: 22, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312710**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57350	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312710-001	14-Sep-2023 08:12	0967_MW114_230914	✓	✓
EP2312710-002	14-Sep-2023 10:43	0967_MW137_230914	✓	✓
EP2312710-003	14-Sep-2023 11:03	0967_MW136_230914	✓	✓
EP2312710-004	14-Sep-2023 13:03	0967_MW125S_230914	✓	✓
EP2312710-005	14-Sep-2023 13:04	0967_MW125D_230914	✓	✓
EP2312710-006	14-Sep-2023 14:16	0967_MW126_230914	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312710**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57350	Issue Date	: 27-Sep-2023 12:10
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0967_MW114_230914	0967_MW137_230914	0967_MW136_230914	0967_MW125S_230914	0967_MW125D_230914
				Sampling date / time	14-Sep-2023 08:12	14-Sep-2023 10:43	14-Sep-2023 11:03	14-Sep-2023 13:03	14-Sep-2023 13:04
					EP2312710-001	EP2312710-002	EP2312710-003	EP2312710-004	EP2312710-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**17**	**625**	**235**	**248**	**103**
Total Alkalinity as CaCO3	----	1	mg/L		**17**	**625**	**235**	**248**	**103**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**21**	**286**	**29**	**288**	**205**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**307**	**1720**	**367**	**3730**	**2770**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**3**	**142**	**90**	**186**	**107**
Magnesium	7439-95-4	1	mg/L		**16**	**149**	**22**	**262**	**132**
Sodium	7440-23-5	1	mg/L		**142**	**1000**	**158**	**1880**	**1460**
Potassium	7440-09-7	1	mg/L		**7**	**11**	**7**	**16**	**40**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**9.44**	**67.0**	**15.6**	**116**	**84.5**
ø **Total Cations**	----	0.01	meq/L		**7.82**	**63.1**	**13.4**	**113**	**80.7**
ø **Ionic Balance**	----	0.01	%		**9.36**	**2.95**	**7.92**	**1.37**	**2.26**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**0.13**	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**0.05**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**0.04**	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW114_230914	0967_MW137_230914	0967_MW136_230914	0967_MW125S_230914	0967_MW125D_230914
				Sampling date / time	14-Sep-2023 08:12	14-Sep-2023 10:43	14-Sep-2023 11:03	14-Sep-2023 13:03	14-Sep-2023 13:04
Compound	CAS Number	LOR	Unit		EP2312710-001	EP2312710-002	EP2312710-003	EP2312710-004	EP2312710-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW114_230914	0967_MW137_230914	0967_MW136_230914	0967_MW125S_230914	0967_MW125D_230914
				Sampling date / time	14-Sep-2023 08:12	14-Sep-2023 10:43	14-Sep-2023 11:03	14-Sep-2023 13:03	14-Sep-2023 13:04
Compound	CAS Number	LOR	Unit		EP2312710-001	EP2312710-002	EP2312710-003	EP2312710-004	EP2312710-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**0.22**	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**0.04**	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**0.17**	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.1**	**107**	**103**	**110**	**108**
13C8-PFOA	----	0.02	%		**95.9**	**87.4**	**94.7**	**91.1**	**92.6**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW126_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 14:16	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312710-006	--------	--------	--------	--------
					Result	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**164**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**164**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**44**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**533**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**40**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**35**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**271**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**6**	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**19.2**	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		**16.8**	----	----	----	----
ø **Ionic Balance**	----	0.01	%		**6.69**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW126_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 14:16	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312710-006	--------	--------	--------	--------
					Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW126_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 14:16	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312710-006	--------	--------	--------	--------
					Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.07**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312710**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57350	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5316529)									
EP2312676-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	50	52	3.7	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	50	52	3.7	0% - 20%
EP2312505-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	202	198	2.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	202	198	2.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5316531)									
EP2312710-005	0967_MW125D_230914	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	103	106	2.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	103	106	2.8	0% - 20%
EP2312766-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	312	309	1.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	312	309	1.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5305201)									
EP2312710-001	0967_MW114_230914	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	21	21	0.0	0% - 20%
EP2312711-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	60	64	7.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5305202)									
EP2312710-001	0967_MW114_230914	ED045G: Chloride	16887-00-6	1	mg/L	307	306	0.3	0% - 20%
EP2312711-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	634	626	1.4	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED093F: Dissolved Major Cations (QC Lot: 5305431)									
EP2312675-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	59	59	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EP2312711-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	34	34	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	27	27	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	149	148	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	10	10	0.0	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5305251)									
EP2312710-002	0967_MW137_230914	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.13	0.13	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5305251)									
EP2312710-002	0967_MW137_230914	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5305251)									
EP2312710-002	0967_MW137_230914	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5305251) - continued									
EP2312710-002	0967_MW137_230914	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5305251)									
EP2312710-002	0967_MW137_230914	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5305251)									
EP2312710-002	0967_MW137_230914	EP231X: Sum of PFAS	----	0.01	µg/L	0.22	0.22	0.0	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.17	0.17	0.0	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5316529)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	85.1	126
				<1	200 mg/L	102	90.5	111
ED037P: Alkalinity by PC Titrator (QCLot: 5316531)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	85.1	126
				<1	200 mg/L	101	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305201)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.9	89.9	112
				<1	500 mg/L	100	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5305202)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.1	88.6	113
				<1	1000 mg/L	102	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5305431)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.1	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.5	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.6	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305251)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	90.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	106	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	77.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	98.5	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305251)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	99.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.0	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.2	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	70.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	95.4	60.5	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.6	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	87.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305251)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	97.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	107	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	98.1	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305251)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5305253) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305201)							
EP2312710-001	0967_MW114_230914	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	104	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5305202)							
EP2312710-001	0967_MW114_230914	ED045G: Chloride	16887-00-6	1000 mg/L	94.4	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305251)							
EP2312710-003	0967_MW136_230914	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	88.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	95.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	113	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	79.5	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	99.2	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305251)							
EP2312710-003	0967_MW136_230914	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	96.3	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	95.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.4	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	99.4	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	90.0	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	97.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	101	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	94.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	96.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251)							
EP2312710-003	0967_MW136_230914	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	88.2	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	84.5	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251) - continued							
EP2312710-003	0967_MW136_230914	EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	84.1	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	99.5	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	100	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	86.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305251)							
EP2312710-003	0967_MW136_230914	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.4	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	98.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	105	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	81.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312710**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce GW - JS	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 6
Order number	: pfas-omp Pearce	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	28	3.57	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	28	3.57	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW114_230914, 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**----**	----	----	**23-Sep-2023**	28-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_MW114_230914, 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**----**	----	----	**26-Sep-2023**	12-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_MW114_230914, 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**----**	----	----	**26-Sep-2023**	12-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW114_230914, 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**----**	----	----	**20-Sep-2023**	21-Sep-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_MW114_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_MW114_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_MW114_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_MW114_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_MW114_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_MW137_230914, 0967_MW136_230914, 0967_MW125S_230914, 0967_MW125D_230914, 0967_MW126_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	28	**3.57**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	28	**3.57**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312711

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASDMP116 **Client:** Stantec **Project Manager** [redacted]
Phone:

ALS Compass COC Reference: 57351; 57352 **# Samples:** **Sampler:** [redacted]
Phone:
57366; 57352; 57350; 57364; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 14/02/23 @ 2:50pm	Date / Time: 14/2 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57351 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW026		14/09/2023 09:37 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW060		14/09/2023 09:38 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW059		14/09/2023 09:39 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_SW058		14/09/2023 09:39 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_SW021		14/09/2023 11:48 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_SW055		14/09/2023 01:16 PM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_SW053		14/09/2023 01:57 PM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57351 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW026	Clear Plastic Bottle - Natural	125 mL	00070522068333	Green	No	
001	0967_SW026	HDPE (no PTFE)	20 mL	00351221006195	Grey	No	
001	0967_SW026	HDPE (no PTFE)	20 mL	00351221006270	Grey	No	
002	0967_SW060	HDPE (no PTFE)	20 mL	00351221006151	Grey	No	
002	0967_SW060	HDPE (no PTFE)	20 mL	00351221006128	Grey	No	
002	0967_SW060	Clear Plastic Bottle - Natural	125 mL	00070522068823	Green	No	
003	0967_SW059	Clear Plastic Bottle - Natural	125 mL	00070522068733	Green	No	
003	0967_SW059	HDPE (no PTFE)	20 mL	00351221006262	Grey	No	
003	0967_SW059	HDPE (no PTFE)	20 mL	00351221005790	Grey	No	
004	0967_SW058	HDPE (no PTFE)	20 mL	00351221005859	Grey	No	
004	0967_SW058	HDPE (no PTFE)	20 mL	00351221005768	Grey	No	
004	0967_SW058	Clear Plastic Bottle - Natural	125 mL	00070522068872	Green	No	
005	0967_SW021	Clear Plastic Bottle - Natural	125 mL	00070522068828	Green	No	
005	0967_SW021	HDPE (no PTFE)	20 mL	00350822007915	Grey	No	
005	0967_SW021	HDPE (no PTFE)	20 mL	00350822007912	Grey	No	
006	0967_SW055	Clear Plastic Bottle - Natural	125 mL	00070522068861	Green	No	
006	0967_SW055	HDPE (no PTFE)	20 mL	00350822007870	Grey	No	
006	0967_SW055	HDPE (no PTFE)	20 mL	00350822007941	Grey	No	
007	0967_SW053	Clear Plastic Bottle - Natural	125 mL	00070522068957	Green	No	
007	0967_SW053	HDPE (no PTFE)	20 mL	00350822007746	Grey	No	
007	0967_SW053	HDPE (no PTFE)	20 mL	00350822007812	Grey	No	

Total Bottle Count: ALS: 21, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312711**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57351	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312711-001	14-Sep-2023 09:37	0967_SW026_230914	✓	✓
EP2312711-002	14-Sep-2023 09:38	0967_SW060_230914	✓	✓
EP2312711-003	14-Sep-2023 09:39	0967_SW059_230914	✓	✓
EP2312711-004	14-Sep-2023 09:39	0967_SW058_230914	✓	✓
EP2312711-005	14-Sep-2023 11:48	0967_SW021_230914	✓	✓
EP2312711-006	14-Sep-2023 13:16	0967_SW055_230914	✓	✓
EP2312711-007	14-Sep-2023 13:57	0967_SW053_230914	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312711**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57351	Issue Date	: 26-Sep-2023 13:15
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW026_230914	0967_SW060_230914	0967_SW059_230914	0967_SW058_230914	0967_SW021_230914
				Sampling date / time	14-Sep-2023 09:37	14-Sep-2023 09:38	14-Sep-2023 09:39	14-Sep-2023 09:39	14-Sep-2023 11:48
Compound	CAS Number	LOR	Unit		EP2312711-001	EP2312711-002	EP2312711-003	EP2312711-004	EP2312711-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		66	74	102	101	49
Total Alkalinity as CaCO3	----	1	mg/L		66	74	102	101	49
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		43	39	2	1	60
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		405	356	145	150	634
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		32	34	40	39	28
Magnesium	7439-95-4	1	mg/L		31	27	11	11	48
Sodium	7440-23-5	1	mg/L		171	149	70	71	266
Potassium	7440-09-7	1	mg/L		11	10	8	8	12
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		13.6	12.3	6.17	6.27	20.1
ø Total Cations	----	0.01	meq/L		11.9	10.6	6.15	6.14	17.2
ø Ionic Balance	----	0.01	%		6.94	7.30	0.16	1.01	7.73
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.02	0.02	0.01	0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.03	0.02	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW026_230914	0967_SW060_230914	0967_SW059_230914	0967_SW058_230914	0967_SW021_230914
				Sampling date / time	14-Sep-2023 09:37	14-Sep-2023 09:38	14-Sep-2023 09:39	14-Sep-2023 09:39	14-Sep-2023 11:48
Compound	CAS Number	LOR	Unit		EP2312711-001	EP2312711-002	EP2312711-003	EP2312711-004	EP2312711-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW026_230914	0967_SW060_230914	0967_SW059_230914	0967_SW058_230914	0967_SW021_230914
				Sampling date / time	14-Sep-2023 09:37	14-Sep-2023 09:38	14-Sep-2023 09:39	14-Sep-2023 09:39	14-Sep-2023 11:48
Compound	CAS Number	LOR	Unit		EP2312711-001	EP2312711-002	EP2312711-003	EP2312711-004	EP2312711-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.05**	**0.04**	**0.01**	**0.01**	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.05**	**0.04**	**0.01**	**0.01**	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.05**	**0.04**	**0.01**	**0.01**	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.6**	**102**	**97.8**	**104**	**101**
13C8-PFOA	----	0.02	%		**93.4**	**94.7**	**97.3**	**93.0**	**90.7**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW055_230914	0967_SW053_230914	----	----	----
				Sampling date / time	14-Sep-2023 13:16	14-Sep-2023 13:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2312711-006	EP2312711-007	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**52**	**48**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**52**	**48**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**4**	**4**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**129**	**118**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**19**	**18**	----	----	----
Magnesium	7439-95-4	1	mg/L		**9**	**8**	----	----	----
Sodium	7440-23-5	1	mg/L		**62**	**62**	----	----	----
Potassium	7440-09-7	1	mg/L		**14**	**14**	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**4.76**	**4.37**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**4.74**	**4.61**	----	----	----
ø **Ionic Balance**	----	0.01	%		**0.18**	**2.68**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW055_230914	0967_SW053_230914	----	----	----
				Sampling date / time	14-Sep-2023 13:16	14-Sep-2023 13:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2312711-006	EP2312711-007	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW055_230914	0967_SW053_230914	----	----	----
				Sampling date / time	14-Sep-2023 13:16	14-Sep-2023 13:57	----	----	----
Compound	CAS Number	LOR	Unit		EP2312711-006	EP2312711-007	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.7**	**106**	----	----	----
13C8-PFOA	----	0.02	%		**92.4**	**92.0**	----	----	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312711**	Page	: 1 of 8
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57351	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5316531)									
EP2312710-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	103	106	2.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	103	106	2.8	0% - 20%
EP2312766-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	312	309	1.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	312	309	1.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5305201)									
EP2312710-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	22	21	8.9	0% - 20%
EP2312711-005	0967_SW021_230914	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	60	64	7.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5305202)									
EP2312710-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	304	301	1.2	0% - 20%
EP2312711-005	0967_SW021_230914	ED045G: Chloride	16887-00-6	1	mg/L	634	626	1.4	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5305431)									
EP2312675-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	59	59	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EP2312711-002	0967_SW060_230914	ED093F: Calcium	7440-70-2	1	mg/L	34	34	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	27	27	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	149	148	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	10	10	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5305251)									
EP2312710-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.13	0.13	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5305251)									
EP2312710-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5305251)									
EP2312710-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5305251)									
EP2312710-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5305251) - continued									
EP2312710-002	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5305251)									
EP2312710-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.22	0.22	0.0	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.17	0.17	0.0	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5316531)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	114	85.1	126
				<1	200 mg/L	101	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305201)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.9	89.9	112
				<1	500 mg/L	100	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5305202)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.1	88.6	113
				<1	1000 mg/L	102	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5305431)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.1	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.5	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.6	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305251)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	90.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	106	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	77.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	98.5	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305251)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	99.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	69.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305251) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.0	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	98.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.8	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	70.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	95.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.6	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	97.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	87.0	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305251)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	97.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	107	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	98.1	64.2	133
EP231P: PFAS Sums (QCLot: 5305251)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305201)							
EP2312710-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	81.0	70.4	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5305202)							
EP2312710-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	90.5	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305251)							
EP2312710-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	88.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	95.9	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	113	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	79.5	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	99.2	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305251)							
EP2312710-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	96.3	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	95.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.4	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	99.4	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	90.0	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	97.2	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	101	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	94.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	96.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.6	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.6	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305251)							
EP2312710-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	88.2	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	84.5	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	84.1	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	99.5	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	100	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	86.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305251)							
EP2312710-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	97.4	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	98.0	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	105	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	81.0	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312711**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce SW - JS	Issue Date	: 26-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 7
Order number	: pfas-omp Pearce	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	12	8.33	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**----**	----	**----**	**23-Sep-2023**	28-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**----**	----	**----**	**26-Sep-2023**	12-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**----**	----	**----**	**26-Sep-2023**	12-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**----**	----	**----**	**20-Sep-2023**	21-Sep-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW026_230914, 0967_SW060_230914, 0967_SW059_230914, 0967_SW058_230914, 0967_SW021_230914, 0967_SW055_230914, 0967_SW053_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**20-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division Perth
Work Order Reference
EP2312714

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA – 0967_PFASDMP_IL2 Client: Stantec Project Manager [redacted]

Phone:

ALS Compass COC Reference: 57351, 57375 # Samples: Sampler:

Phone:

57366; 57352; 57350; 57364; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody: [redacted]

Relinquis[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/08/23 @ 2150pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57352 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-om[redacted]

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD026		14/09/2023 09:33 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD060		14/09/2023 09:35 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD058		14/09/2023 09:35 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_QC114		14/09/2023 09:36 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD021		14/09/2023 11:47 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD055		14/09/2023 01:16 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD053		14/09/2023 02:04 PM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57352 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

[redacted] / ES2022MWHAUS0002

QUOTE NO: SY/139/19 B

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_QC116		14/09/2023 02:03 PM	SOIL	ALS: 1 Non ALS: 0	No	X		

6:47:24 AM

CHAIN OF CUSTODY

COC#: 57352 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD026	HDPE Soil Jar	200 mL	00621222068353	Grey	No	
002	0967_SD060	HDPE Soil Jar	200 mL	00621222068315	Grey	No	
003	0967_SD058	HDPE Soil Jar	200 mL	00621122078967	Grey	No	
004	0967_QC114	HDPE Soil Jar	200 mL	00621222068377	Grey	No	
005	0967_SD021	HDPE Soil Jar	200 mL	00621222068291	Grey	No	
006	0967_SD055	HDPE Soil Jar	200 mL	00621122078974	Grey	No	
007	0967_SD053	HDPE Soil Jar	200 mL	00621122084032	Grey	No	
008	0967_QC116	HDPE Soil Jar	200 mL	00621122090710	Grey	No	

Total Bottle Count: ALS: 8, Non ALS: 0

6:47:24 AM

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312714**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57352	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 8 / 8

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2312714-001	14-Sep-2023 09:33	0967_SD026_230914	✓	✓
EP2312714-002	14-Sep-2023 09:35	0967_SD060_230914	✓	✓
EP2312714-003	14-Sep-2023 09:35	0967_SD058_230914	✓	✓
EP2312714-004	14-Sep-2023 09:36	0967_QC114_230914	✓	✓
EP2312714-005	14-Sep-2023 11:47	0967_SD021_230914	✓	✓
EP2312714-006	14-Sep-2023 13:16	0967_SD055_230914	✓	✓
EP2312714-007	14-Sep-2023 14:04	0967_SD053_230914	✓	✓
EP2312714-008	14-Sep-2023 14:03	0967_QC116_230914	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312714**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57352	Issue Date	: 22-Sep-2023 07:42
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: The LOR of particular analytes has been raised for some samples due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD026_230914	0967_SD060_230914	0967_SD058_230914	0967_QC114_230914	0967_SD021_230914
				Sampling date / time	14-Sep-2023 09:33	14-Sep-2023 09:35	14-Sep-2023 09:35	14-Sep-2023 09:36	14-Sep-2023 11:47
Compound	CAS Number	LOR	Unit		EP2312714-001	EP2312714-002	EP2312714-003	EP2312714-004	EP2312714-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**52.4**	**51.8**	**25.4**	**29.3**	**41.4**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0005**	**0.0003**	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0068**	**0.0039**	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		**0.0002**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		**0.0003**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0012	<0.0012	<0.0005	<0.0005	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0012	<0.0012	<0.0005	<0.0005	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD026_230914	0967_SD060_230914	0967_SD058_230914	0967_QC114_230914	0967_SD021_230914
				Sampling date / time	14-Sep-2023 09:33	14-Sep-2023 09:35	14-Sep-2023 09:35	14-Sep-2023 09:36	14-Sep-2023 11:47
Compound	CAS Number	LOR	Unit		EP2312714-001	EP2312714-002	EP2312714-003	EP2312714-004	EP2312714-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0012	<0.0012	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0005	<0.0005	<0.0002	<0.0002	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0078**	**0.0042**	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0073**	**0.0042**	<0.0002	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0078**	**0.0042**	<0.0002	<0.0002	<0.0002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**92.0**	**100**	**102**	**102**	**112**
13C8-PFOA	----	0.0002	%		**106**	**99.0**	**104**	**98.5**	**90.5**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD055_230914	0967_SD053_230914	0967_QC116_230914	----	----
				Sampling date / time	14-Sep-2023 13:16	14-Sep-2023 14:04	14-Sep-2023 14:03	----	----
Compound	CAS Number	LOR	Unit		EP2312714-006	EP2312714-007	EP2312714-008	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**72.1**	**47.2**	**43.5**	**----**	**----**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0012**	**0.0005**	**0.0006**	**----**	**----**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	**----**	**----**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0005	<0.0002	<0.0002	**----**	**----**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0005	<0.0002	<0.0002	**----**	**----**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	<0.0006	<0.0006	**----**	**----**
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**----**	**----**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	<0.0006	<0.0006	**----**	**----**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD055_230914	0967_SD053_230914	0967_QC116_230914	----	----
				Sampling date / time	14-Sep-2023 13:16	14-Sep-2023 14:04	14-Sep-2023 14:03	----	----
Compound	CAS Number	LOR	Unit		EP2312714-006	EP2312714-007	EP2312714-008	--------	--------
					Result	Result	Result	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0006	<0.0006	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0006	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0005	<0.0002	<0.0002	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0005	<0.0002	<0.0002	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0012**	**0.0005**	**0.0006**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0012**	**0.0005**	**0.0006**	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0012**	**0.0005**	**0.0006**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**100**	**96.5**	**111**	----	----
13C8-PFOA	----	0.0002	%		**87.5**	**94.0**	**88.5**	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2312714**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57352	Issue Date	: 22-Sep-2023
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5308934)									
EP2312714-001	0967_SD026_230914	EA055: Moisture Content	----	0.1	%	52.4	46.9	11.1	0% - 20%
EP2312811-003	Anonymous	EA055: Moisture Content	----	0.1	%	20.8	20.5	1.4	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5301216)									
EP2312253-102	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312714-005	0967_SD021_230914	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5301216)									
EP2312253-102	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5301216) - continued									
EP2312253-102	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2312714-005	0967_SD021_230914	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5301216)									
EP2312253-102	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312714-005	0967_SD021_230914	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5301216)									
EP2312253-102	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312714-005	0967_SD021_230914	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5301216)									
EP2312253-102	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312714-005	0967_SD021_230914	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5301216)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	96.4	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	91.9	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	102	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	93.1	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	98.8	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5301216)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	97.0	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.2	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	100	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5301216)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	88.5	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	81.6	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	102	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	105	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5301216)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5301216) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	98.3	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	97.5	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	94.2	54.8	124
EP231P: PFAS Sums (QCLot: 5301216)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5301216)							
EP2312253-103	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	99.5	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	104	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	87.7	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	103	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	82.7	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	93.7	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5301216)							
EP2312253-103	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	91.8	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	97.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	105	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	98.0	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	104	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	101	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	106	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	105	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	92.8	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	98.5	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5301216)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5301216) - continued							
EP2312253-103	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	95.6	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	112	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	91.1	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	105	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	93.2	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	112	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	90.8	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5301216)							
EP2312253-103	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	94.0	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	105	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	105	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	104	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312714**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce SD - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 8
Order number	: pfas-omp Pearce	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content (Dried @ 105-110°C)								
HDPE Soil Jar (EA055)								
0967_SD026_230914,	0967_SD060_230914,	**14-Sep-2023**	**----**	----	----	**20-Sep-2023**	28-Sep-2023	✓
0967_SD058_230914,	0967_QC114_230914,							
0967_SD021_230914,	0967_SD055_230914,							
0967_SD053_230914,	0967_QC116_230914							
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD026_230914,	0967_SD060_230914,	**14-Sep-2023**	**15-Sep-2023**	12-Mar-2024	✓	**15-Sep-2023**	25-Oct-2023	✓
0967_SD058_230914,	0967_QC114_230914,							
0967_SD021_230914,	0967_SD055_230914,							
0967_SD053_230914,	0967_QC116_230914							
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X)								
0967_SD026_230914,	0967_SD060_230914,	**14-Sep-2023**	**15-Sep-2023**	12-Mar-2024	✓	**15-Sep-2023**	25-Oct-2023	✓
0967_SD058_230914,	0967_QC114_230914,							
0967_SD021_230914,	0967_SD055_230914,							
0967_SD053_230914,	0967_QC116_230914							
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X)								
0967_SD026_230914,	0967_SD060_230914,	**14-Sep-2023**	**15-Sep-2023**	12-Mar-2024	✓	**15-Sep-2023**	25-Oct-2023	✓
0967_SD058_230914,	0967_QC114_230914,							
0967_SD021_230914,	0967_SD055_230914,							
0967_SD053_230914,	0967_QC116_230914							
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X)								
0967_SD026_230914,	0967_SD060_230914,	**14-Sep-2023**	**15-Sep-2023**	12-Mar-2024	✓	**15-Sep-2023**	25-Oct-2023	✓
0967_SD058_230914,	0967_QC114_230914,							
0967_SD021_230914,	0967_SD055_230914,							
0967_SD053_230914,	0967_QC116_230914							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD026_230914, 0967_SD060_230914, 0967_SD058_230914, 0967_QC114_230914, 0967_SD021_230914, 0967_SD055_230914, 0967_SD053_230914, 0967_QC116_230914	**14-Sep-2023**	**15-Sep-2023**	12-Mar-2024	✓	**15-Sep-2023**	25-Oct-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312715

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

[redacted]

Project: WA_0967_PFASOMP_16Z Client: Stantec Project Manager:
Phone:

ALS Compass COC Reference: 57351; 57355 # Samples: Sampler:
Phone:
57366; 57352; 57350; 57364; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquis[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/09/23 @ 2:50pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: **57353** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT100

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT100		14/09/2023 08:23 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57353 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT100

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT100	HDPE (no PTFE)	20 mL	00351221006081	Grey	No	
001	0967_POT100	HDPE (no PTFE)	20 mL	00351221006278	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312715**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57353	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT100		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312715-001	14-Sep-2023 08:23	0967_POT100_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312715**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57353	Issue Date	: 20-Sep-2023 13:21
Sampler	: [redacted]		
Site	: Pearce POT100		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT100_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:23	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312715-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.07**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT100_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:23	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312715-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.07**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.07**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.07**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**101**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312715**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57353	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT100		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312715**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce POT100	Issue Date	: 20-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT100_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT100_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT100_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT100_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT100_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312717
Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA – 0967_PFASDMP_IL2 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: 57351; 57355 **# Samples:** **Sampler:**
57366; 57352; 57350; 57366; 57359; 57353; 57382 **Phone:**

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 14/08/23 @ 2150pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57359 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT147

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted] QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT147		14/09/2023 08:56 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC112		14/09/2023 08:59 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57359 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT147

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT147	HDPE (no PTFE)	20 mL	00351221005766	Grey	No	
001	0967_POT147	HDPE (no PTFE)	20 mL	00351221006002	Grey	No	
002	0967_QC112	HDPE (no PTFE)	20 mL	00350822058876	Grey	No	
002	0967_QC112	HDPE (no PTFE)	20 mL	00350822058798	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312717**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57359	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT147		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312717-001	14-Sep-2023 08:56	0967_POT147_230914	✓
EP2312717-002	14-Sep-2023 08:59	0967_QC112_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312717**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57359	Issue Date	: 20-Sep-2023 13:22
Sampler	: [redacted]		
Site	: Pearce POT147		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC112_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:59	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312717-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.04**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC112_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:59	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312717-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.9**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.3**	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT147_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:56	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312717-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.04**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT147_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 08:56	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312717-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	**0.04**	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.04**	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.04**	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**90.4**	----	----	----	----	
13C8-PFOA	----	0.02	%	**98.0**	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312717**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57359	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT147		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312717**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce POT147	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT147_230914, 0967_QC112_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT147_230914, 0967_QC112_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT147_230914, 0967_QC112_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT147_230914, 0967_QC112_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT147_230914, 0967_QC112_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental
Perth
Work Order Reference
EP2312718

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP11Z **Client:** Stantec **Project Manager** [redacted]
Phone:

ALS Compass COC Reference: 57351, 57375 **# Samples:** **Sampler:**
Phone:
57366; 57352; 57350; 57366; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquish [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/09/23 @ 2150pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57364 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT116

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT116		14/09/2023 09:10 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57364 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT116

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH: [redacted]

SAMPLER MOBILE: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT116	HDPE (no PTFE)	20 mL	00350822007874	Grey	No	
001	0967_POT116	HDPE (no PTFE)	20 mL	00350822007856	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312718**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57364	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT116		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312718-001	14-Sep-2023 09:10	0967_POT116_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312718**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57364	Issue Date	: 20-Sep-2023 13:22
Sampler	: [redacted]		
Site	: Pearce POT116		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT116_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:10	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312718-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.09**	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	**0.09**	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.55**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.12**	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	**0.02**	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.11**	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.02**	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT116_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:10	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312718-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	**1.00**	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.67**	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.91**	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**94.9**	----	----	----	----	
13C8-PFOA	----	0.02	%	**98.5**	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312718**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57364	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT116		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312718**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce POT116	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation* ***Date extracted***	*Due for extraction*	*Evaluation*	*Analysis* ***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT116_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT116_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT116_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT116_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT116_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312719

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967-PFASOMP16Z Client: Stantec Project Manag[redacted]
Phone:

ALS Compass COC Reference: 57351; 57375 # Samples: Sampler:
Phone:
57366; 57352; 57350; 57366; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 14/09/23 @ 2150pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57366 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT032

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted] CONTACT PH: [redacted] SAMPLER MOBILE: [redacted]

EMAIL REPORTS TO: [redacted] QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS | **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT032		14/09/2023 09:20 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC113		14/09/2023 09:21 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57366 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT032

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT032	HDPE (no PTFE)	20 mL	00351221005785	Grey	No	
001	0967_POT032	HDPE (no PTFE)	20 mL	00351221005772	Grey	No	
002	0967_QC113	HDPE (no PTFE)	20 mL	00351221006143	Grey	No	
002	0967_QC113	HDPE (no PTFE)	20 mL	00351221006228	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312719**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57366	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT032		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312719-001	14-Sep-2023 09:20	0967_POT032_230914	✓
EP2312719-002	14-Sep-2023 09:21	0967_QC113_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312719**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57366	Issue Date	: 20-Sep-2023 13:23
Sampler	: [redacted]		
Site	: Pearce POT032		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC113_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312719-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC113_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:21	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312719-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.2**	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT032_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312719-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT032_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 09:20	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312719-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312719**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57366	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT032		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312719**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce POT032	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Due for extraction	Evaluation	Analysis: Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT032_230914, 0967_QC113_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT032_230914, 0967_QC113_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT032_230914, 0967_QC113_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT032_230914, 0967_QC113_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT032_230914, 0967_QC113_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312720

Custody Document for Submissions via ALS Compass App

Project: WA - 0967 - PFASCMP_WZ Client: Stantec Project Manage [redacted]
Phone:

ALS Compass COC Reference: 57351, 57375 # Samples: Sampler:
Phone:

57366; 57352; 57350; 57364; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinqui[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/09/23 @ 2:50pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57375 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT015

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

CONTACT PH: [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted]

/ ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS

ANALYSIS REQUIRED

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT015		14/09/2023 11:28 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC115		14/09/2023 11:30 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57375 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT015

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT015	HDPE (no PTFE)	20 mL	00351221006131	Grey	No	
001	0967_POT015	HDPE (no PTFE)	20 mL	00351221005784	Grey	No	
002	0967_QC115	HDPE (no PTFE)	20 mL	00351221006263	Grey	No	
002	0967_QC115	HDPE (no PTFE)	20 mL	00351221006282	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312720**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57375	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT015		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312720-001	14-Sep-2023 11:28	0967_POT015_230914	✓
EP2312720-002	14-Sep-2023 11:30	0967_QC115_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312720**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57375	Issue Date	: 20-Sep-2023 13:23
Sampler	: [redacted]		
Site	: Pearce POT015		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC115_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312720-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC115_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 11:30	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312720-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.3**	----	----	----	----
13C8-PFOA	----	0.02	%		**97.8**	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT015_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 11:28	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312720-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT015_230914	----	----	----	----
				Sampling date / time	14-Sep-2023 11:28	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312720-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**99.3**	----	----	----	----	
13C8-PFOA	----	0.02	%	**100**	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312720**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57375	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT015		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312720**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce POT015	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_POT015_230914,	0967_QC115_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_POT015_230914,	0967_QC115_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_POT015_230914,	0967_QC115_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_POT015_230914,	0967_QC115_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_POT015_230914,	0967_QC115_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312724

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASDMP_WZ Client: Stantec Project Ma[redacted]
Phone:

ALS Compass COC Reference: 57351; 57355 # Samples: Sampler:
Phone:

57366; 57352; 57350; 57364; 57359; 57353; 57382

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquis[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 14/09/23 @ 2:50pm	Date / Time: 14/9 1450	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57382 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_QC301		14/09/2023 02:54 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC302		14/09/2023 02:55 PM	WATER	ALS: 2 Non ALS: 0	No	X		
003	0967_QC401		14/09/2023 02:56 PM	WATER	ALS: 2 Non ALS: 0	No	X		
004	0967_QC402		14/09/2023 02:57 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57382 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_QC301	HDPE (no PTFE)	20 mL	00351221005860	Grey	No	
001	0967_QC301	HDPE (no PTFE)	20 mL	00351221006072	Grey	No	
002	0967_QC302	HDPE (no PTFE)	20 mL	00351221005770	Grey	No	
002	0967_QC302	HDPE (no PTFE)	20 mL	00351221005919	Grey	No	
003	0967_QC401	HDPE (no PTFE)	20 mL	00351221006295	Grey	No	
003	0967_QC401	HDPE (no PTFE)	20 mL	00351221005763	Grey	No	
004	0967_QC402	HDPE (no PTFE)	20 mL	00351221005868	Grey	No	
004	0967_QC402	HDPE (no PTFE)	20 mL	00351221006221	Grey	No	

Total Bottle Count: ALS: 8, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312724**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57382	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 14-Sep-2023 14:50	Issue Date	: 15-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312724-001	14-Sep-2023 14:54	0967_QC301_230914	✓
EP2312724-002	14-Sep-2023 14:55	0967_QC302_230914	✓
EP2312724-003	14-Sep-2023 14:56	0967_QC401_230914	✓
EP2312724-004	14-Sep-2023 14:57	0967_QC402_230914	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312724**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023 14:50
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57382	Issue Date	: 20-Sep-2023 13:25
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC301_230914	0967_QC302_230914	0967_QC401_230914	0967_QC402_230914	----
				Sampling date / time	14-Sep-2023 14:54	14-Sep-2023 14:55	14-Sep-2023 14:56	14-Sep-2023 14:57	----
Compound	CAS Number	LOR	Unit		EP2312724-001	EP2312724-002	EP2312724-003	EP2312724-004	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC301_230914	0967_QC302_230914	0967_QC401_230914	0967_QC402_230914	----
				Sampling date / time	14-Sep-2023 14:54	14-Sep-2023 14:55	14-Sep-2023 14:56	14-Sep-2023 14:57	----
Compound	CAS Number	LOR	Unit		EP2312724-001	EP2312724-002	EP2312724-003	EP2312724-004	--------
					Result	Result	Result	Result	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.0**	**98.0**	**92.8**	**94.6**	----
13C8-PFOA	----	0.02	%		**94.8**	**106**	**95.2**	**93.7**	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312724**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 15-Sep-2023
C-O-C number	: 57382	Issue Date	: 20-Sep-2023
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 4		
No. of samples analysed	: 4		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5305253)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	98.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	96.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	111	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	94.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	95.4	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5305253)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.0	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5305253)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	104	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	96.2	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.7	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	101	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5305253) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	95.6	64.2	133
EP231P: PFAS Sums (QCLot: 5305253)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312724**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 14-Sep-2023
Site	: Pearce GW - JS	Issue Date	: 20-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 4
Order number	: pfas-omp Pearce	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	16	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_QC301_230914, 0967_QC302_230914, 0967_QC401_230914, 0967_QC402_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_QC301_230914, 0967_QC302_230914, 0967_QC401_230914, 0967_QC402_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_QC301_230914, 0967_QC302_230914, 0967_QC401_230914, 0967_QC402_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_QC301_230914, 0967_QC302_230914, 0967_QC401_230914, 0967_QC402_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_QC301_230914, 0967_QC302_230914, 0967_QC401_230914, 0967_QC402_230914	**14-Sep-2023**	**18-Sep-2023**	12-Mar-2024	✓	**18-Sep-2023**	12-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	16	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Perth
Work Order Reference
EP2312794

Telephone : 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

[redacted]

Project: WA_0967_PFASDMP_23 Client: Stantec Project Manager:

Phone:

ALS Compass COC Reference: 57396; 57397 # Samples: 1 ESKY Sampler:

Phone:

57413; 57414; 57415; 57395

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	ZI		
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57396 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW024		15/09/2023 09:53 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_SW042		15/09/2023 10:07 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_SW057		15/09/2023 11:03 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57396 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard Info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW024	Clear Plastic Bottle - Natural	125 mL	00070522068956	Green	No	
001	0967_SW024	HDPE (no PTFE)	20 mL	00350822007939	Grey	No	
001	0967_SW024	HDPE (no PTFE)	20 mL	00350822007755	Grey	No	
002	0967_SW042	Clear Plastic Bottle - Natural	125 mL	00070522068916	Green	No	
002	0967_SW042	HDPE (no PTFE)	20 mL	00350822008025	Grey	No	
002	0967_SW042	HDPE (no PTFE)	20 mL	00350822007889	Grey	No	
003	0967_SW057	Clear Plastic Bottle - Natural	125 mL	00070522167710	Green	No	
003	0967_SW057	HDPE (no PTFE)	20 mL	00351221006096	Grey	No	
003	0967_SW057	HDPE (no PTFE)	20 mL	00351221005990	Grey	No	

Total Bottle Count: ALS: 9, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312794**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57396	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **27-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312794-001	15-Sep-2023 09:53	0967_SW024_230915	✓	✓
EP2312794-002	15-Sep-2023 10:07	0967_SW042_230915	✓	✓
EP2312794-003	15-Sep-2023 11:03	0967_SW057_230915	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312794**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Sep-2023
C-O-C number	: 57396	Issue Date	: 28-Sep-2023 10:56
Sampler	: [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW024_230915	0967_SW042_230915	0967_SW057_230915	----	----
				Sampling date / time	15-Sep-2023 09:53	15-Sep-2023 10:07	15-Sep-2023 11:03	----	----
Compound	CAS Number	LOR	Unit		EP2312794-001	EP2312794-002	EP2312794-003	--------	--------
					Result	Result	Result	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**51**	**51**	**97**	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**51**	**51**	**97**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**40**	**40**	<1	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**540**	**553**	**156**	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**23**	**20**	**36**	----	----
Magnesium	7439-95-4	1	mg/L		**41**	**37**	**10**	----	----
Sodium	7440-23-5	1	mg/L		**238**	**234**	**75**	----	----
Potassium	7440-09-7	1	mg/L		**13**	**12**	**8**	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**17.1**	**17.4**	**6.34**	----	----
ø **Total Cations**	----	0.01	meq/L		**15.2**	**14.5**	**6.09**	----	----
ø **Ionic Balance**	----	0.01	%		**5.81**	**9.14**	**2.03**	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.02**	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	**0.01**	**0.04**	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW024_230915	0967_SW042_230915	0967_SW057_230915	----	----
				Sampling date / time	15-Sep-2023 09:53	15-Sep-2023 10:07	15-Sep-2023 11:03	----	----
Compound	CAS Number	LOR	Unit		EP2312794-001	EP2312794-002	EP2312794-003	--------	--------
					Result	Result	Result	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW024_230915	0967_SW042_230915	0967_SW057_230915	----	----
				Sampling date / time	15-Sep-2023 09:53	15-Sep-2023 10:07	15-Sep-2023 11:03	----	----
Compound	CAS Number	LOR	Unit		EP2312794-001	EP2312794-002	EP2312794-003	--------	--------
					Result	Result	Result	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	**0.01**	**0.06**	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	**0.01**	**0.06**	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	**0.01**	**0.06**	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.0**	**91.9**	**88.3**	----	----
13C8-PFOA	----	0.02	%		**98.2**	**95.7**	**105**	----	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312794**	Page	: 1 of 8
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Sep-2023
C-O-C number	: 57396	Issue Date	: 28-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5310394)									
EP2312796-011	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	141	142	1.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	141	142	1.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5305199)									
EP2312794-001	0967_SW024_230915	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	40	39	0.0	0% - 20%
EP2312840-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2780	2740	1.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5305200)									
EP2312794-001	0967_SW024_230915	ED045G: Chloride	16887-00-6	1	mg/L	540	550	1.9	0% - 20%
EP2312840-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	176	170	3.2	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5307315)									
EP2312794-001	0967_SW024_230915	ED093F: Calcium	7440-70-2	1	mg/L	23	22	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	41	40	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	238	239	0.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	13	13	0.0	0% - 50%
EP2312899-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	14	16	11.1	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	15	15	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	96	95	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	10	0.0	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5309418)									
EP2312799-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5309418) - continued									
EP2312799-001	Anonymous	EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5309418)									
EP2312799-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5309418)									
EP2312799-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5309418)									
EP2312799-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5309418)									
EP2312799-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231P: PFAS Sums (QC Lot: 5309418) - continued									
EP2312799-001	Anonymous	EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5310394)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	119	85.1	126
				<1	200 mg/L	104	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305199)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.7	89.9	112
				<1	500 mg/L	94.0	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5305200)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	97.9	88.6	113
				<1	1000 mg/L	98.6	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5307315)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.9	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.5	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309418)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	94.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	82.1	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	85.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309418)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	86.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.6	69.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309418) - continued								
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	87.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309418)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	107	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	93.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.2	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	93.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	85.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309418)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	89.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	85.7	64.2	133
EP231P: PFAS Sums (QCLot: 5309418)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305199)							
EP2312794-001	0967_SW024_230915	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	109	70.4	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED045G: Chloride by Discrete Analyser (QCLot: 5305200)							
EP2312794-001	0967_SW024_230915	ED045G: Chloride	16887-00-6	1000 mg/L	83.6	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309418)							
EP2312799-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.3	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	106	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	93.7	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	84.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	80.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309418)							
EP2312799-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	90.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	96.4	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	99.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.6	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	97.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	114	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	104	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	100	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309418)							
EP2312799-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	100	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	79.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	77.7	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	107	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	97.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	87.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309418)							
EP2312799-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	94.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	94.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	83.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	84.5	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312794**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce SW - JS	Issue Date	: 28-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 3
Order number	: pfas-omp Pearce	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**----**	----	----	**21-Sep-2023**	29-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**----**	----	----	**26-Sep-2023**	13-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**----**	----	----	**26-Sep-2023**	13-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**----**	----	----	**20-Sep-2023**	22-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW024_230915, 0967_SW042_230915, 0967_SW057_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Perth
Work Order Reference
EP2312799

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_8967_PFASOMP_23 Client: Stantec Project Manager [redacted]
Phone:

ALS Compass COC Reference: 57396; 57397 # Samples: 1 ESKs. Sampler:
57413; 57414; 57415; 57395 Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57395 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW127		15/09/2023 08:15 AM	WATER	ALS: 5 Non ALS: 0	No		X		
002	0967_MW129S		15/09/2023 08:56 AM	WATER	ALS: 5 Non ALS: 0	No		X		
003	0967_MW129D		15/09/2023 08:55 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_MW130D		15/09/2023 09:25 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_MW130S		15/09/2023 09:26 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_MW128S		15/09/2023 10:25 AM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_MW128D		15/09/2023 10:30 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

COC#: 57395 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS / **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_QC301		15/09/2023 01:08 PM	WATER	ALS: 2 Non ALS: 0	No	X			
009	0967_QC302		15/09/2023 01:07 PM	WATER	ALS: 2 Non ALS: 0	No	X			
010	0967_QC401		15/09/2023 01:08 PM	WATER	ALS: 2 Non ALS: 0	No	X			
011	0967_QC402		15/09/2023 01:09 PM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 57395 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW127	HDPE (no PTFE)	20 mL	00350822008015	Grey	No	
001	0967_MW127	HDPE (no PTFE)	20 mL	00350822007954	Grey	No	
001	0967_MW127	Clear Plastic Bottle - Natural	125 mL	00070522167800	Green	No	
001	0967_MW127	HDPE (no PTFE)	20 mL	00351221005828	Grey	No	
001	0967_MW127	HDPE (no PTFE)	20 mL	00351221005813	Grey	No	
002	0967_MW129S	HDPE (no PTFE)	20 mL	00350822058897	Grey	No	
002	0967_MW129S	HDPE (no PTFE)	20 mL	00350822058856	Grey	No	
002	0967_MW129S	Clear Plastic Bottle - Natural	125 mL	00070522068899	Green	No	
002	0967_MW129S	HDPE (no PTFE)	20 mL	00350822007937	Grey	No	
002	0967_MW129S	HDPE (no PTFE)	20 mL	00350822007757	Grey	No	
003	0967_MW129D	Clear Plastic Bottle - Natural	125 mL	00070522068904	Green	No	
003	0967_MW129D	HDPE (no PTFE)	20 mL	00350822007993	Grey	No	
003	0967_MW129D	HDPE (no PTFE)	20 mL	00350822007798	Grey	No	
004	0967_MW130D	Clear Plastic Bottle - Natural	125 mL	00070522068905	Green	No	
004	0967_MW130D	HDPE (no PTFE)	20 mL	00350822007760	Grey	No	
004	0967_MW130D	HDPE (no PTFE)	20 mL	00350822007893	Grey	No	
005	0967_MW130S	HDPE (no PTFE)	20 mL	00350822007787	Grey	No	
005	0967_MW130S	HDPE (no PTFE)	20 mL	00350822007820	Grey	No	
005	0967_MW130S	Clear Plastic Bottle - Natural	125 mL	00070522068892	Green	No	
006	0967_MW128S	HDPE (no PTFE)	20 mL	00350822007822	Grey	No	
006	0967_MW128S	HDPE (no PTFE)	20 mL	00350822007887	Grey	No	
006	0967_MW128S	Clear Plastic Bottle - Natural	125 mL	00070522068835	Green	No	
007	0967_MW128D	Clear Plastic Bottle - Natural	125 mL	00070522068937	Green	No	
007	0967_MW128D	HDPE (no PTFE)	20 mL	00350822008027	Grey	No	
007	0967_MW128D	HDPE (no PTFE)	20 mL	00350822007790	Grey	No	
008	0967_QC301	HDPE (no PTFE)	20 mL	00350822008014	Grey	No	

Friday, September 15, 2023 5:36:31 AM

CHAIN OF CUSTODY

COC#: 57395 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

008	0967_QC301	HDPE (no PTFE)	20 mL	00350822007791	Grey	No	
009	0967_QC302	HDPE (no PTFE)	20 mL	00351221005814	Grey	No	
009	0967_QC302	HDPE (no PTFE)	20 mL	00351221005977	Grey	No	
010	0967_QC401	HDPE (no PTFE)	20 mL	00351221005885	Grey	No	
010	0967_QC401	HDPE (no PTFE)	20 mL	00351221006150	Grey	No	
011	0967_QC402	HDPE (no PTFE)	20 mL	00351221005946	Grey	No	
011	0967_QC402	HDPE (no PTFE)	20 mL	00351221006044	Grey	No	

Total Bottle Count: ALS: 33, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312799**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57395	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **27-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 11

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312799-001	15-Sep-2023 08:15	0967_MW127_230915	✓	✓
EP2312799-002	15-Sep-2023 08:56	0967_MW129S_230915	✓	✓
EP2312799-003	15-Sep-2023 08:55	0967_MW129D_230915	✓	✓
EP2312799-004	15-Sep-2023 09:25	0967_MW130D_230915	✓	✓
EP2312799-005	15-Sep-2023 09:26	0967_MW130S_230915	✓	✓
EP2312799-006	15-Sep-2023 10:25	0967_MW128S_230915	✓	✓
EP2312799-007	15-Sep-2023 10:30	0967_MW128D_230915	✓	✓
EP2312799-008	15-Sep-2023 13:08	0967_QC301_230915	✓	
EP2312799-009	15-Sep-2023 13:07	0967_QC302_230915	✓	
EP2312799-010	15-Sep-2023 13:08	0967_QC401_230915	✓	
EP2312799-011	15-Sep-2023 13:09	0967_QC402_230915	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312799**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Sep-2023
C-O-C number	: 57395	Issue Date	: 27-Sep-2023 20:27
Sampler	: [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0967_MW127_230915	0967_MW129S_230915	0967_MW129D_230915	0967_MW130D_230915	0967_MW130S_230915
				Sampling date / time	15-Sep-2023 08:15	15-Sep-2023 08:56	15-Sep-2023 08:55	15-Sep-2023 09:25	15-Sep-2023 09:26
					EP2312799-001	EP2312799-002	EP2312799-003	EP2312799-004	EP2312799-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**276**	**231**	**255**	**173**	**222**
Total Alkalinity as CaCO3	----	1	mg/L		**276**	**231**	**255**	**173**	**222**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**21**	**15**	**11**	**6**	**13**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**103**	**306**	**332**	**141**	**299**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**22**	**92**	**83**	**44**	**58**
Magnesium	7439-95-4	1	mg/L		**7**	**16**	**19**	**10**	**22**
Sodium	7440-23-5	1	mg/L		**149**	**132**	**165**	**91**	**147**
Potassium	7440-09-7	1	mg/L		**3**	**8**	**8**	**8**	**6**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**8.86**	**13.6**	**14.7**	**7.56**	**13.1**
ø Total Cations	----	0.01	meq/L		**8.23**	**11.8**	**13.1**	**7.18**	**11.2**
ø Ionic Balance	----	0.01	%		**3.66**	**6.71**	**5.77**	**2.56**	**7.74**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW127_230915	0967_MW129S_230915	0967_MW129D_230915	0967_MW130D_230915	0967_MW130S_230915
				Sampling date / time	15-Sep-2023 08:15	15-Sep-2023 08:56	15-Sep-2023 08:55	15-Sep-2023 09:25	15-Sep-2023 09:26
Compound	CAS Number	LOR	Unit		EP2312799-001	EP2312799-002	EP2312799-003	EP2312799-004	EP2312799-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW127_230915	0967_MW129S_230915	0967_MW129D_230915	0967_MW130D_230915	0967_MW130S_230915
				Sampling date / time	15-Sep-2023 08:15	15-Sep-2023 08:56	15-Sep-2023 08:55	15-Sep-2023 09:25	15-Sep-2023 09:26
Compound	CAS Number	LOR	Unit		EP2312799-001	EP2312799-002	EP2312799-003	EP2312799-004	EP2312799-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.4**	**90.6**	**84.9**	**87.6**	**85.8**
13C8-PFOA	----	0.02	%		**104**	**97.2**	**92.5**	**96.9**	**98.2**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW128S_230915	0967_MW128D_230915	0967_QC301_230915	0967_QC302_230915	0967_QC401_230915
				Sampling date / time	15-Sep-2023 10:25	15-Sep-2023 10:30	15-Sep-2023 13:08	15-Sep-2023 13:07	15-Sep-2023 13:08
Compound	CAS Number	LOR	Unit		EP2312799-006	EP2312799-007	EP2312799-008	EP2312799-009	EP2312799-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	**18**	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**152**	**30**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**152**	**48**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**6**	**9**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**117**	**200**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**45**	**58**	----	----	----
Magnesium	7439-95-4	1	mg/L		**8**	<1	----	----	----
Sodium	7440-23-5	1	mg/L		**63**	**58**	----	----	----
Potassium	7440-09-7	1	mg/L		**6**	**8**	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**6.46**	**6.79**	----	----	----
ø Total Cations	----	0.01	meq/L		**5.80**	**5.62**	----	----	----
ø Ionic Balance	----	0.01	%		**5.42**	**9.40**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW128S_230915	0967_MW128D_230915	0967_QC301_230915	0967_QC302_230915	0967_QC401_230915
				Sampling date / time	15-Sep-2023 10:25	15-Sep-2023 10:30	15-Sep-2023 13:08	15-Sep-2023 13:07	15-Sep-2023 13:08
Compound	CAS Number	LOR	Unit		EP2312799-006	EP2312799-007	EP2312799-008	EP2312799-009	EP2312799-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW128S_230915	0967_MW128D_230915	0967_QC301_230915	0967_QC302_230915	0967_QC401_230915
				Sampling date / time	15-Sep-2023 10:25	15-Sep-2023 10:30	15-Sep-2023 13:08	15-Sep-2023 13:07	15-Sep-2023 13:08
Compound	CAS Number	LOR	Unit		EP2312799-006	EP2312799-007	EP2312799-008	EP2312799-009	EP2312799-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**94.8**	**86.3**	**81.3**	**89.6**	**84.6**
13C8-PFOA	----	0.02	%		**97.5**	**98.8**	**92.2**	**88.7**	**96.5**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC402_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 13:09	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312799-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC402_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 13:09	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312799-011	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**79.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312799**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 19-Sep-2023
C-O-C number	: 57395	Issue Date	: 27-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce GW - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5317960)									
EP2312853-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	148	149	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	148	149	0.0	0% - 20%
EP2312639-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	59	55	7.7	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	254	258	1.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	313	313	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5305203)									
EP2312799-001	0967_MW127_230915	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	21	21	0.0	0% - 20%
EP2312880-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	188	174	8.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5305204)									
EP2312799-001	0967_MW127_230915	ED045G: Chloride	16887-00-6	1	mg/L	103	103	0.0	0% - 20%
EP2312880-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	193	200	3.6	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5307315)									
EP2312794-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	23	22	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	41	40	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	238	239	0.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	13	13	0.0	0% - 50%
EP2312899-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	14	16	11.1	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	15	15	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	96	95	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	10	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5309418)									
EP2312799-001	0967_MW127_230915	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5309418)									
EP2312799-001	0967_MW127_230915	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5309418)									
EP2312799-001	0967_MW127_230915	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5309418)									
EP2312799-001	0967_MW127_230915	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5309418) - continued									
EP2312799-001	0967_MW127_230915	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5309418)									
EP2312799-001	0967_MW127_230915	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5317960)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	119	85.1	126
				<1	200 mg/L	106	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305203)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	89.9	112
				<1	500 mg/L	91.6	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5305204)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	107	88.6	113
				<1	1000 mg/L	101	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5307315)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	102	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.9	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	99.5	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5308017)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	86.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	83.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	101	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	72.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309418)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	94.0	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.7	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	82.1	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	85.9	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5308017)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	87.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	86.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	77.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	89.0	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309418)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	86.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	97.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	111	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	95.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	94.8	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	87.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5308017)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	86.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.7	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	89.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	84.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309418)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	107	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	93.6	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	82.2	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	97.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	93.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	85.8	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	86.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	93.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	69.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	64.3	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309418)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	101	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	89.6	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	85.7	64.2	133
EP231P: PFAS Sums (QCLot: 5308017)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5309418)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5305203)							
EP2312799-001	0967_MW127_230915	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	115	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5305204)							
EP2312799-001	0967_MW127_230915	ED045G: Chloride	16887-00-6	1000 mg/L	97.7	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309418)							
EP2312799-002	0967_MW129S_230915	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	98.3	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	106	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	93.7	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	84.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	80.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309418)							
EP2312799-002	0967_MW129S_230915	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	90.5	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	99.0	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	96.4	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	99.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.6	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	97.8	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	114	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	104	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	93.8	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	100	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.4	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309418)							
EP2312799-002	0967_MW129S_230915	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	100	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	79.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	77.7	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	107	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	97.8	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	87.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309418)							
EP2312799-002	0967_MW129S_230915	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	94.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	94.6	64.0	140

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309418) - continued							
EP2312799-002	0967_MW129S_230915	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	83.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	84.5	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312799**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce GW - JS	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 11
Order number	: pfas-omp Pearce	No. of samples analysed	: 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	18	5.56	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW127_230915, 0967_MW129S_230915, 0967_MW129D_230915, 0967_MW130D_230915, 0967_MW130S_230915, 0967_MW128S_230915, 0967_MW128D_230915	**15-Sep-2023**	**----**	----	----	**26-Sep-2023**	29-Sep-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_MW127_230915, 0967_MW129S_230915, 0967_MW129D_230915, 0967_MW130D_230915, 0967_MW130S_230915, 0967_MW128S_230915, 0967_MW128D_230915	**15-Sep-2023**	**----**	----	----	**27-Sep-2023**	13-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_MW127_230915, 0967_MW129S_230915, 0967_MW129D_230915, 0967_MW130D_230915, 0967_MW130S_230915, 0967_MW128S_230915, 0967_MW128D_230915	**15-Sep-2023**	**----**	----	----	**27-Sep-2023**	13-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW127_230915, 0967_MW129S_230915, 0967_MW129D_230915, 0967_MW130D_230915, 0967_MW130S_230915, 0967_MW128S_230915, 0967_MW128D_230915	**15-Sep-2023**	**----**	----	----	**20-Sep-2023**	22-Sep-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW127_230915, 0967_MW129D_230915, 0967_MW130S_230915, 0967_MW128D_230915, 0967_QC302_230915, 0967_QC402_230915, 0967_MW129S_230915, 0967_MW130D_230915, 0967_MW128S_230915, 0967_QC301_230915, 0967_QC401_230915,	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW127_230915, 0967_MW129D_230915, 0967_MW130S_230915, 0967_MW128D_230915, 0967_QC302_230915, 0967_QC402_230915, 0967_MW129S_230915, 0967_MW130D_230915, 0967_MW128S_230915, 0967_QC301_230915, 0967_QC401_230915,	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_MW127_230915, 0967_MW129D_230915, 0967_MW130S_230915, 0967_MW128D_230915, 0967_QC302_230915, 0967_QC402_230915, 0967_MW129S_230915, 0967_MW130D_230915, 0967_MW128S_230915, 0967_QC301_230915, 0967_QC401_230915,	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW127_230915, 0967_MW129D_230915, 0967_MW130S_230915, 0967_MW128D_230915, 0967_QC302_230915, 0967_QC402_230915, 0967_MW129S_230915, 0967_MW130D_230915, 0967_MW128S_230915, 0967_QC301_230915, 0967_QC401_230915,	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_MW127_230915, 0967_MW129D_230915, 0967_MW130S_230915, 0967_MW128D_230915, 0967_QC302_230915, 0967_QC402_230915, 0967_MW129S_230915, 0967_MW130D_230915, 0967_MW128S_230915, 0967_QC301_230915, 0967_QC401_230915,	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

ALS

Perth
Work Order Reference
EP2312800

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_8967_PFASOMP_23 Client: Stantec Project Manager [redacted]
Phone:

ALS Compass COC Reference: 57396; 57397; 57413; 57414; 57415; 57395 # Samples: 1 ESKY Sampler:
Phone:

Turnaround Requirements: standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57397 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS

ANALYSIS REQUIRED

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD024		15/09/2023 09:58 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57397 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - JS

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD024	HDPE Soil Jar	200 mL	00621222068336	Grey	No	

Total Bottle Count: ALS: 1, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312800**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57397	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - JS		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **22-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2312800-001	15-Sep-2023 09:58	0967_SD024_230915	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312800**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57397	Issue Date	: 22-Sep-2023 07:39
Sampler	: [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: Matrix spike recovery not determined for some analytes on sample EP2312912-001 due to the presence of high level contaminants.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD024_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 09:58	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312800-001	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**28.4**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0012**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0002	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0005	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0005	----	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD024_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 09:58	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312800-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0005	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0012**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0012**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0012**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**110**	----	----	----	----
13C8-PFOA	----	0.0002	%		**102**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2312800**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 18-Sep-2023
C-O-C number	: 57397	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce SD - JS		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5304965)									
EP2312523-001	Anonymous	EA055: Moisture Content	----	0.1	%	34.9	35.3	1.1	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5309266)									
EP2312800-001	0967_SD024_230915	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0012	0.0011	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2312912-010	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5309266)									
EP2312800-001	0967_SD024_230915	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5309266) - continued									
EP2312800-001	0967_SD024_230915	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2312912-010	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5309266)									
EP2312800-001	0967_SD024_230915	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312912-010	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5309266)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5309266) - continued									
EP2312800-001	0967_SD024_230915	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2312912-010	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5309266)									
EP2312800-001	0967_SD024_230915	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0012	0.0011	8.7	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0012	0.0011	8.7	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0012	0.0011	8.7	No Limit
EP2312912-010	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309266)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	108	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	106	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	99.2	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	116	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	97.0	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	101	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309266)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	104	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.6	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	97.6	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	102	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309266)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.6	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	96.0	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	84.9	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	113	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.9	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309266)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309266) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	96.2	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	106	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	110	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	99.2	54.8	124
EP231P: PFAS Sums (QCLot: 5309266)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5309266)							
EP2312912-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	106	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	96.0	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	91.6	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	108	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	70.7	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	101	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309266)							
EP2312912-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	96.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	92.5	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	96.8	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	96.4	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	96.6	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	93.1	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	# Not Determined	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	# Not Determined	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	# Not Determined	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	79.3	66.0	139

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5309266) - continued							
EP2312912-001	Anonymous	EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	88.5	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5309266)							
EP2312912-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	88.8	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	83.6	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	85.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	107	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	103	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	92.4	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	102	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5309266)							
EP2312912-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	99.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	82.2	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	# Not Determined	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312800**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce SD - JS	Issue Date	: 22-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2312912--001	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD024_230915	**15-Sep-2023**	**----**	----	**----**	**18-Sep-2023**	29-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD024_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	30-Oct-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD024_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	30-Oct-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) 0967_SD024_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	30-Oct-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD024_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	30-Oct-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) 0967_SD024_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	30-Oct-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass
SAMPLING Intelligence

Environmental Division
Perth
Work Order Reference
EP2312801

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-0967-PFASOMP-23 Client: Stantec Project Manager: [redacted]
Phone:

ALS Compass COC Reference: 57396; 57397; 57413; 57414; 57415; 57395 # Samples: 1 ESKY. Sampler:
Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relin [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57413 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT181

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT181		15/09/2023 11:54 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC117		15/09/2023 11:57 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57413 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT181

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT181	HDPE (no PTFE)	20 mL	00350822064022	Grey	No	
001	0967_POT181	HDPE (no PTFE)	20 mL	00350822007860	Grey	No	
002	0967_QC117	HDPE (no PTFE)	20 mL	00350822058807	Grey	No	
002	0967_QC117	HDPE (no PTFE)	20 mL	00350822058778	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312801**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57413	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT181		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **27-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312801-001	15-Sep-2023 11:54	0967_POT181_230915	✓
EP2312801-002	15-Sep-2023 11:57	0967_QC117_230915	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312801**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57413	Issue Date	: 26-Sep-2023 10:46
Sampler	: [redacted]		
Site	: Pearce POT181		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC117_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 11:57	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312801-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_QC117_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 11:57	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312801-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**97.7**	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT181_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 11:54	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312801-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT181_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 11:54	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312801-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**95.3**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312801**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57413	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT181		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5308017)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	86.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	83.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	101	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	72.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5308017)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	87.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	86.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	77.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	89.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5308017)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	86.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.7	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	89.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	84.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	86.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	93.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	69.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	64.3	64.2	133
EP231P: PFAS Sums (QCLot: 5308017)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312801**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce POT181	Issue Date	: 26-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT181_230915, 0967_QC117_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT181_230915, 0967_QC117_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT181_230915, 0967_QC117_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT181_230915, 0967_QC117_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT181_230915, 0967_QC117_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312802

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA-8967-PFASDMP-23 Client: Stantec Project Mana[redacted]
Phone:

ALS Compass COC Reference: 57396, 57397 # Samples: 1 ESKs. Sampler:
57413; 57414; 57415; 57395 Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinq[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57414 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT003

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT003		15/09/2023 12:19 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57414 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT003

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT003	HDPE (no PTFE)	20 mL	00350822075219	Grey	No	
001	0967_POT003	HDPE (no PTFE)	20 mL	00350822075191	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312802**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57414	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT003		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **27-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312802-001	15-Sep-2023 12:19	0967_POT003_230915	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312802**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57414	Issue Date	: 26-Sep-2023 11:58
Sampler	: [redacted]		
Site	: Pearce POT003		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT003_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 12:19	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312802-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.04**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT003_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 12:19	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312802-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.2**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312802**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57414	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT003		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5308017)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	86.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	83.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	101	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	72.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5308017)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	87.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	86.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	77.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	89.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5308017)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	86.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.7	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	89.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	84.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	86.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	93.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	69.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	64.3	64.2	133
EP231P: PFAS Sums (QCLot: 5308017)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312802**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce POT003	Issue Date	: 26-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT003_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT003_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT003_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT003_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT003_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312803

Telephone : -- 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 Client: Stantec Project Manager: [redacted]

Phone:

ALS Compass COC Reference: 57396; 57397 # Samples: 1 ESKs. Sampler:

57413; 57414; 57415; 57395 Phone:

Turnaround Requirements: Standard

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 15/09/23	Date / Time: 15/9 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57415 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT159

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT159		15/09/2023 12:39 PM	WATER	ALS: 2 Non ALS: 0	No	X		

OF CUSTODY

15 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

US - STANTEC AUSTRALIA PTY LTD

67_PFASOMP_23

POT159

np Pearce

R: [redacted]

R: [redacted]

O: [redacted]

O: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

[redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

IPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
67_POT159	HDPE (no PTFE)	20 mL	00350822007972	Grey	No	
67_POT159	HDPE (no PTFE)	20 mL	00350822008006	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312803**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57415	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT159		
Sampler	: [redacted]		

Dates

Date Samples Received	: 15-Sep-2023 14:45	Issue Date	: 18-Sep-2023
Client Requested Due Date	: 27-Sep-2023	Scheduled Reporting Date	: **27-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 11.6 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312803-001	15-Sep-2023 12:39	0967_POT159_230915	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312803**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57415	Issue Date	: 26-Sep-2023 11:59
Sampler	: [redacted]		
Site	: Pearce POT159		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT159_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 12:39	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312803-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.01**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.03**	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT159_230915	----	----	----	----
				Sampling date / time	15-Sep-2023 12:39	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312803-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.2**	----	----	----	----
13C8-PFOA	----	0.02	%		**83.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312803**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: 57415	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT159		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5308017)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	86.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	83.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	101	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	73.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	72.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5308017)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	87.2	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	86.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.0	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	77.6	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	93.4	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.2	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	88.4	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	98.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	89.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5308017)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	86.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	116	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	87.7	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	89.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	84.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	76.4	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5308017) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	86.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	93.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	69.2	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	64.3	64.2	133
EP231P: PFAS Sums (QCLot: 5308017)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312803**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 15-Sep-2023
Site	: Pearce POT159	Issue Date	: 26-Sep-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT159_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT159_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT159_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT159_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT159_230915	**15-Sep-2023**	**20-Sep-2023**	13-Mar-2024	✓	**20-Sep-2023**	13-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	9	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312954

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: 57569 **# Samples:** **Sampler:**
Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	**Received by:**	**Relinquished by:**	**Received by:**
[redacted]	IC		
Date / Time: 19/9/23 2:30	**Date / Time:** 19/9/23 1445	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

COC#: 57483 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT021

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT021		18/09/2023 09:03 AM	WATER	ALS: 2 Non ALS: 0	No	X		

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312954**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57483	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT021		
Sampler	: [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312954-001	18-Sep-2023 09:03	0967_POT021_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312954**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57483	Issue Date	: 26-Sep-2023 11:58
Sampler	: [redacted]		
Site	: Pearce POT021		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT021_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:03	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312954-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT021_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:03	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312954-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**84.9**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312954**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57483	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT021		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312954**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT021	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT021_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT021_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT021_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT021_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT021_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312955

Telephone : – 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Sampler: Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57499, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57485 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT027

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT027		18/09/2023 09:17 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57485 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT027

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT027	HDPE (no PTFE)	20 mL	00350822058783	Grey	No	
001	0967_POT027	HDPE (no PTFE)	20 mL	00350822058717	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312955**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57485	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT027		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312955-001	18-Sep-2023 09:17	0967_POT027_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312955**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57485	Issue Date	: 26-Sep-2023 11:59
Sampler	: [redacted]		
Site	: Pearce POT027		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT027_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312955-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.01**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT027_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:17	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312955-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312955**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57485	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT027		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312955**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT027	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method	*Sample Date*	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)		*Date extracted*	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT027_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT027_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT027_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT027_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT027_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312956

Telephone : -- 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: ~~57569~~ **# Samples:** **Sampler:**
Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57485
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time:	**Date / Time:**	**Date / Time:**	**Date / Time:**
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

COC#: 57486 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT136

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT136		18/09/2023 09:29 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57486 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT136

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT136	HDPE (no PTFE)	20 mL	00350822058766	Grey	No	
001	0967_POT136	HDPE (no PTFE)	20 mL	00350822058753	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312956**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57486	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT136		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312956-001	18-Sep-2023 09:29	0967_POT136_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312956**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57486	Issue Date	: 26-Sep-2023 11:59
Sampler	: [redacted]		
Site	: Pearce POT136		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT136_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:29	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312956-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.04**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT136_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:29	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312956-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.04**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.04**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**90.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312956**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57486	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT136		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312956**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT136	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT136_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT136_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT136_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT136_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT136_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Perth
Work Order Reference
EP2312957

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]
Phone:

ALS Compass COC Reference: 57569 **# Samples:** **Sampler:**
Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 5748[illegible]
57502, 57505, 57485, 57512, 57508, 57501, 57499, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	**Date / Time:** 19/9/23 1445	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

COC#: 57487 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT155

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT155		18/09/2023 09:36 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57487 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT155

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT155	HDPE (no PTFE)	20 mL	00350822058818	Grey	No	
001	0967_POT155	HDPE (no PTFE)	20 mL	00350822058722	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312957**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57487	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT155		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312957-001	18-Sep-2023 09:36	0967_POT155_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312957**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57487	Issue Date	: 26-Sep-2023 11:57
Sampler	: [redacted]		
Site	: Pearce POT155		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT155_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:36	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312957-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.03**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT155_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:36	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312957-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**91.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312957**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57487	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT155		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312957**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT155	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT155_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT155_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT155_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT155_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT155_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2312959

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Phone: Sampler: Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57490 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT127

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT127		18/09/2023 09:46 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: **57490** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT127

ORDER NO: pfas-omp Pearce

PROJECT MANAGE[redacted]

PRIMARY SAMPLER[redacted]

EMAIL REPORTS TO:[redacted]

EMAIL INVOICES TO:[redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT127	HDPE (no PTFE)	20 mL	00350822058792	Grey	No	
001	0967_POT127	HDPE (no PTFE)	20 mL	00350822058743	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312959**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57490	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT127		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312959-001	18-Sep-2023 09:46	0967_POT127_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312959**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57490	Issue Date	: 26-Sep-2023 11:57
Sampler	: [redacted]		
Site	: Pearce POT127		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT127_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312959-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT127_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312959-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**91.3**	----	----	----	----
13C8-PFOA	----	0.02	%		**86.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312959**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57490	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT127		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

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This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312959**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT127	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT127_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT127_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT127_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT127_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT127_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312960

Telephone : – 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager** [redacted]
Phone:

ALS Compass COC Reference: 57564 **# Samples:** **Sampler:**
Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, ~~57485~~, 57512, 57508, 57501, 57499, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time:	**Date / Time:**	**Date / Time:**	**Date / Time:**
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

COC#: 57493 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT080

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT080		18/09/2023 09:59 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57493 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT080

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT080	HDPE (no PTFE)	20 mL	00350822058756	Grey	No	
001	0967_POT080	HDPE (no PTFE)	20 mL	00350822058715	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312960**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57493	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT080		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312960-001	18-Sep-2023 09:59	0967_POT080_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312960**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57493	Issue Date	: 26-Sep-2023 11:58
Sampler	: [redacted]		
Site	: Pearce POT080		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT080_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312960-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT080_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 09:59	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312960-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**93.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312960**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57493	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT080		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312960**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT080	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT080_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT080_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT080_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT080_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT080_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2312961

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

Phone: ( )

ALS Compass COC Reference: 57569 # Samples: Sampler:

Phone: ( )

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57499, 57493, 57490, 57486, 57476.

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57494 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT081

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT081		18/09/2023 10:22 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57494 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT081

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT081	HDPE (no PTFE)	20 mL	00350822058842	Grey	No	
001	0967_POT081	HDPE (no PTFE)	20 mL	00350822058910	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312961**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57494	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT081		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312961-001	18-Sep-2023 10:22	0967_POT081_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312961**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57494	Issue Date	: 26-Sep-2023 11:57
Sampler	: [redacted]		
Site	: Pearce POT081		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT081_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:22	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312961-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.01**	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT081_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:22	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312961-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**86.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312961**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57494	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT081		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312961**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT081	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT081_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT081_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT081_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT081_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT081_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312963

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec

Project Manager: [redacted]
Phone: [redacted]

ALS Compass COC Reference: 57569 # Samples:

Sampler:
Phone:

Turnaround Requirements: ~~Standard~~ Urgent

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57501 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT165

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
andom Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT165		18/09/2023 10:35 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Tuesday, September 19, 2023 6:03:35 AM

CHAIN OF CUSTODY

COC#: **57501** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT165

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT165	HDPE (no PTFE)	20 mL	00350822058823	Grey	No	
001	0967_POT165	HDPE (no PTFE)	20 mL	00350822058949	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312963**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57501	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT165		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312963-001	18-Sep-2023 10:35	0967_POT165_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312963**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57501	Issue Date	: 26-Sep-2023 11:57
Sampler	: [redacted]		
Site	: Pearce POT165		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT165_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:35	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312963-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.03**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT165_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:35	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312963-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.8**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312963**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57501	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT165		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312963**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT165	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT165_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT165_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT165_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT165_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT165_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

Environ...
Perth
Work Order Reference
EP2312964

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 67569 # Samples: Phone: Sampler: Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57502 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT070

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT070S		18/09/2023 10:45 AM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_POT070D		18/09/2023 10:45 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57502 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT070

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

MAIL REPORTS TO: [redacted]

MAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT070S	HDPE (no PTFE)	20 mL	00350822058960	Grey	No	
001 ...	0967_POT070S	HDPE (no PTFE)	20 mL	00350822058835	Grey	No	
002	0967_POT070D	HDPE (no PTFE)	20 mL	00350822058858	Grey	No	
002	0967_POT070D	HDPE (no PTFE)	20 mL	00350822058730	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312964**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57502	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT070		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312964-001	18-Sep-2023 10:45	0967_POT070S_230918	✓
EP2312964-002	18-Sep-2023 10:45	0967_POT070D_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312964**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57502	Issue Date	: 26-Sep-2023 11:58
Sampler	: [redacted]		
Site	: Pearce POT070		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: FRESH WATER (Matrix: WATER)				Sample ID	0967_POT070D_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312964-002	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: FRESH WATER (Matrix: WATER)				Sample ID	0967_POT070D_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312964-002	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**87.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.5**	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT070S_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312964-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.02**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT070S_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 10:45	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312964-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.6**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: FRESH WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

Sub-Matrix: POTABLE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312964**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57502	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT070		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312964**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT070	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT070S_230918, 0967_POT070D_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT070S_230918, 0967_POT070D_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT070S_230918, 0967_POT070D_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT070S_230918, 0967_POT070D_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT070S_230918, 0967_POT070D_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312965

Telephone : -- 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]

ALS Compass COC Reference: 57569 **# Samples:** **Sampler:** [redacted]

Phone: [redacted]

Turnaround Requirements: ~~Standard~~ Urgent

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time:	**Date / Time:**	**Date / Time:**	**Date / Time:**
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

ALS COC#: 57505 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW037		18/09/2023 12:00 PM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW036		18/09/2023 12:01 PM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW038		18/09/2023 12:01 PM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_SW047		18/09/2023 01:00 PM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_SW048		18/09/2023 01:20 PM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_SW066		18/09/2023 01:45 PM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_SW067		18/09/2023 02:16 PM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 57505 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted] QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_SW050		18/09/2023 03:23 PM	WATER	ALS: 3 Non ALS: 0	No		X		
009	0967_QC301		18/09/2023 03:26 PM	WATER	ALS: 2 Non ALS: 0	No	X			
010	0967_QC401		18/09/2023 03:26 PM	WATER	ALS: 2 Non ALS: 0	No	X			
011	0967_SW052		19/09/2023 08:01 AM	WATER	ALS: 3 Non ALS: 0	No		X		
012	0967_SW049		19/09/2023 08:25 AM	WATER	ALS: 3 Non ALS: 0	No		X		
013	0967_SW028		19/09/2023 11:01 AM	WATER	ALS: 3 Non ALS: 0	No		X		
014	0967_SW029		19/09/2023 11:11 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

(ALS) COC#: 57505 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted] QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0967_SW022		19/09/2023 11:43 AM	WATER	ALS: 3 Non ALS: 0	No		X		

CHAIN OF CUSTODY

ALS COC#: 57505 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW037	Clear Plastic Bottle - Natural	125 mL	00070522167736	Green	No	
001	0967_SW037	HDPE (no PTFE)	20 mL	00351221005730	Grey	No	
001	0967_SW037	HDPE (no PTFE)	20 mL	00351221006165	Grey	No	
002	0967_SW036	Clear Plastic Bottle - Natural	125 mL	00070522167808	Green	No	
002	0967_SW036	HDPE (no PTFE)	20 mL	00351221005804	Grey	No	
002	0967_SW036	HDPE (no PTFE)	20 mL	00351221005913	Grey	No	
003	0967_SW038	HDPE (no PTFE)	20 mL	00351221006303	Grey	No	
003	0967_SW038	Clear Plastic Bottle - Natural	125 mL	00070522167942	Green	No	
003	0967_SW038	HDPE (no PTFE)	20 mL	00351221005944	Grey	No	
004	0967_SW047	HDPE (no PTFE)	20 mL	00351221006241	Grey	No	
004	0967_SW047	HDPE (no PTFE)	20 mL	00351221006164	Grey	No	
004	0967_SW047	Clear Plastic Bottle - Natural	125 mL	00070522167737	Green	No	
005	0967_SW048	Clear Plastic Bottle - Natural	125 mL	00070522167759	Green	No	
005	0967_SW048	HDPE (no PTFE)	20 mL	00351221006098	Grey	No	
005	0967_SW048	HDPE (no PTFE)	20 mL	00351221005997	Grey	No	
006	0967_SW066	HDPE (no PTFE)	20 mL	00350822007747	Grey	No	
006	0967_SW066	HDPE (no PTFE)	20 mL	00350822008002	Grey	No	
006	0967_SW066	Clear Plastic Bottle - Natural	125 mL	00070522066985	Green	No	
007	0967_SW067	HDPE (no PTFE)	20 mL	00350822007967	Grey	No	
007	0967_SW067	HDPE (no PTFE)	20 mL	00350822008016	Grey	No	
007	0967_SW067	Clear Plastic Bottle - Natural	125 mL	00070522068850	Green	No	
008	0967_SW050	HDPE (no PTFE)	20 mL	00351221005733	Grey	No	
008	0967_SW050	HDPE (no PTFE)	20 mL	00351221006108	Grey	No	
008	0967_SW050	Clear Plastic Bottle - Natural	125 mL	00070522167756	Green	No	
009	0967_QC301	HDPE (no PTFE)	20 mL	00350822058853	Grey	No	
009	0967_QC301	HDPE (no PTFE)	20 mL	00350822058920	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 57505 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: S17139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

010	0967_QC401	HDPE (no PTFE)	20 mL	00350822058945	Grey	No	
010	0967_QC401	HDPE (no PTFE)	20 mL	00350822058830	Grey	No	
011	0967_SW052	Clear Plastic Bottle - Natural	125 mL	00070522167775	Green	No	
011	0967_SW052	HDPE (no PTFE)	20 mL	00351221006097	Grey	No	
011	0967_SW052	HDPE (no PTFE)	20 mL	00351221006215	Grey	No	
012	0967_SW049	Clear Plastic Bottle - Natural	125 mL	00070522088347	Green	No	
012	0967_SW049	HDPE (no PTFE)	20 mL	00351221006069	Grey	No	
012	0967_SW049	HDPE (no PTFE)	20 mL	00351221005823	Grey	No	
013	0967_SW028	Clear Plastic Bottle - Natural	125 mL	00070522088914	Green	No	
013	0967_SW028	HDPE (no PTFE)	20 mL	00350822007935	Grey	No	
013	0967_SW028	HDPE (no PTFE)	20 mL	00350822008010	Grey	No	
014	0967_SW029	HDPE (no PTFE)	20 mL	00350822075169	Grey	No	
014	0967_SW029	Clear Plastic Bottle - Natural	125 mL	00070522045998	Green	No	
014	0967_SW029	HDPE (no PTFE)	20 mL	00350822075181	Grey	No	
015	0967_SW022	Clear Plastic Bottle - Natural	125 mL	00070522088317	Green	No	
015	0967_SW022	HDPE (no PTFE)	20 mL	00351221006226	Grey	No	
015	0967_SW022	HDPE (no PTFE)	20 mL	00351221006220	Grey	No	

Total Bottle Count: ALS: 43, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312965**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57505	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 21-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 15 / 15

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312965-001	18-Sep-2023 12:00	0967_SW037_230918	✓	✓
EP2312965-002	18-Sep-2023 12:01	0967_SW036_230918	✓	✓
EP2312965-003	18-Sep-2023 12:01	0967_SW038_230918	✓	✓
EP2312965-004	18-Sep-2023 13:00	0967_SW047_230918	✓	✓
EP2312965-005	18-Sep-2023 13:20	0967_SW048_230918	✓	✓
EP2312965-006	18-Sep-2023 13:45	0967_SW066_230918	✓	✓
EP2312965-007	18-Sep-2023 14:16	0967_SW067_230918	✓	✓
EP2312965-008	18-Sep-2023 15:23	0967_SW050_230918	✓	✓
EP2312965-009	18-Sep-2023 15:26	0967_QC301_230918	✓	
EP2312965-010	18-Sep-2023 15:26	0967_QC401_230918	✓	
EP2312965-011	19-Sep-2023 08:01	0967_SW052_230919	✓	✓
EP2312965-012	19-Sep-2023 08:25	0967_SW049_230919	✓	✓
EP2312965-013	19-Sep-2023 11:01	0967_SW028_230919	✓	✓
EP2312965-014	19-Sep-2023 11:11	0967_SW029_230919	✓	✓
EP2312965-015	19-Sep-2023 11:43	0967_SW022_230919	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312965**	Page	: 1 of 12
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57505	Issue Date	: 03-Oct-2023 09:39
Sampler	: [redacted]		
Site	: Pearce SW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 15		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Niamh Carthew	Lab Technichian	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X: Variable matrix spike recovery for sample EP2313114-002 due to between-bottle heterogeneity for some high level contaminants and matrix interference.
- ED041G (Sulfate Turbidimetric): LOR for sample EP2312965-007 raised due to possible sample matrix interference.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW037_230918	0967_SW036_230918	0967_SW038_230918	0967_SW047_230918	0967_SW048_230918
				Sampling date / time	18-Sep-2023 12:00	18-Sep-2023 12:01	18-Sep-2023 12:01	18-Sep-2023 13:00	18-Sep-2023 13:20
Compound	CAS Number	LOR	Unit		EP2312965-001	EP2312965-002	EP2312965-003	EP2312965-004	EP2312965-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**92**	**91**	**90**	**72**	**74**
Total Alkalinity as CaCO3	----	1	mg/L		**92**	**91**	**90**	**72**	**74**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**46**	**45**	**45**	**38**	**35**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**251**	**249**	**249**	**555**	**538**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**27**	**28**	**28**	**26**	**26**
Magnesium	7439-95-4	1	mg/L		**19**	**20**	**19**	**38**	**36**
Sodium	7440-23-5	1	mg/L		**124**	**131**	**130**	**230**	**224**
Potassium	7440-09-7	1	mg/L		**7**	**8**	**8**	**12**	**12**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**9.88**	**9.78**	**9.76**	**17.9**	**17.4**
ø Total Cations	----	0.01	meq/L		**8.48**	**8.95**	**8.82**	**14.7**	**14.3**
ø Ionic Balance	----	0.01	%		**7.58**	**4.45**	**5.05**	**9.65**	**9.70**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	**0.04**	**0.04**	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.04**	**0.04**	**0.04**	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.42**	**0.43**	**0.46**	**0.03**	**0.03**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**0.02**	<0.02	**0.02**	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.73**	**0.63**	**0.83**	**0.05**	**0.06**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.02**	**0.02**	**0.02**	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.12**	**0.12**	**0.11**	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW037_230918	0967_SW036_230918	0967_SW038_230918	0967_SW047_230918	0967_SW048_230918
				Sampling date / time	18-Sep-2023 12:00	18-Sep-2023 12:01	18-Sep-2023 12:01	18-Sep-2023 13:00	18-Sep-2023 13:20
Compound	CAS Number	LOR	Unit		EP2312965-001	EP2312965-002	EP2312965-003	EP2312965-004	EP2312965-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.03**	**0.03**	**0.03**	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW037_230918	0967_SW036_230918	0967_SW038_230918	0967_SW047_230918	0967_SW048_230918
				Sampling date / time	18-Sep-2023 12:00	18-Sep-2023 12:01	18-Sep-2023 12:01	18-Sep-2023 13:00	18-Sep-2023 13:20
Compound	CAS Number	LOR	Unit		EP2312965-001	EP2312965-002	EP2312965-003	EP2312965-004	EP2312965-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**1.42**	**1.31**	**1.55**	**0.08**	**0.09**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**1.15**	**1.06**	**1.29**	**0.08**	**0.09**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**1.36**	**1.27**	**1.49**	**0.08**	**0.09**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.2**	**95.1**	**97.9**	**93.6**	**101**
13C8-PFOA	----	0.02	%		**95.6**	**93.2**	**108**	**111**	**100**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW066_230918	0967_SW067_230918	0967_SW050_230918	0967_QC301_230918	0967_QC401_230918
				Sampling date / time	18-Sep-2023 13:45	18-Sep-2023 14:16	18-Sep-2023 15:23	18-Sep-2023 15:26	18-Sep-2023 15:26
Compound	CAS Number	LOR	Unit		EP2312965-006	EP2312965-007	EP2312965-008	EP2312965-009	EP2312965-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**92**	**111**	**111**	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**92**	**111**	**111**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**7**	<10	**42**	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**222**	**189**	**437**	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**20**	**24**	**31**	----	----
Magnesium	7439-95-4	1	mg/L		**15**	**15**	**32**	----	----
Sodium	7440-23-5	1	mg/L		**111**	**94**	**201**	----	----
Potassium	7440-09-7	1	mg/L		**7**	**8**	**12**	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**8.25**	**7.55**	**15.4**	----	----
ø Total Cations	----	0.01	meq/L		**7.24**	**6.72**	**13.2**	----	----
ø Ionic Balance	----	0.01	%		**6.50**	**5.77**	**7.64**	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.04**	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW066_230918	0967_SW067_230918	0967_SW050_230918	0967_QC301_230918	0967_QC401_230918
				Sampling date / time	18-Sep-2023 13:45	18-Sep-2023 14:16	18-Sep-2023 15:23	18-Sep-2023 15:26	18-Sep-2023 15:26
Compound	CAS Number	LOR	Unit		EP2312965-006	EP2312965-007	EP2312965-008	EP2312965-009	EP2312965-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	**0.06**	**0.06**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW066_230918	0967_SW067_230918	0967_SW050_230918	0967_QC301_230918	0967_QC401_230918
				Sampling date / time	18-Sep-2023 13:45	18-Sep-2023 14:16	18-Sep-2023 15:23	18-Sep-2023 15:26	18-Sep-2023 15:26
Compound	CAS Number	LOR	Unit		EP2312965-006	EP2312965-007	EP2312965-008	EP2312965-009	EP2312965-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	**0.08**	**0.06**	**0.06**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.08**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.08**	**0.06**	**0.06**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**98.5**	**97.5**	**106**	**95.6**	**105**
13C8-PFOA	----	0.02	%		**103**	**109**	**100**	**91.8**	**105**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW052_230919	0967_SW049_230919	0967_SW028_230919	0967_SW029_230919	0967_SW022_230919
				Sampling date / time	19-Sep-2023 08:01	19-Sep-2023 08:25	19-Sep-2023 11:01	19-Sep-2023 11:11	19-Sep-2023 11:43
Compound	CAS Number	LOR	Unit		EP2312965-011	EP2312965-012	EP2312965-013	EP2312965-014	EP2312965-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		90	74	57	57	116
Total Alkalinity as CaCO3	----	1	mg/L		90	74	57	57	116
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		36	38	35	23	30
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		428	572	518	455	281
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		38	33	34	33	35
Magnesium	7439-95-4	1	mg/L		34	44	41	34	23
Sodium	7440-23-5	1	mg/L		196	249	220	169	135
Potassium	7440-09-7	1	mg/L		12	13	11	10	6
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		14.6	18.4	16.5	14.4	10.9
ø Total Cations	----	0.01	meq/L		13.5	16.4	14.9	12.0	9.66
ø Ionic Balance	----	0.01	%		3.89	5.66	4.96	9.06	5.86
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.06
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.05
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.04	0.03	0.10	0.13	0.41
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.04	0.05	0.09	0.13	0.61
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	0.17
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	0.02	0.03	0.19

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW052_230919	0967_SW049_230919	0967_SW028_230919	0967_SW029_230919	0967_SW022_230919
				Sampling date / time	19-Sep-2023 08:01	19-Sep-2023 08:25	19-Sep-2023 11:01	19-Sep-2023 11:11	19-Sep-2023 11:43
Compound	CAS Number	LOR	Unit		EP2312965-011	EP2312965-012	EP2312965-013	EP2312965-014	EP2312965-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	**0.04**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	**0.03**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	**0.30**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW052_230919	0967_SW049_230919	0967_SW028_230919	0967_SW029_230919	0967_SW022_230919
				Sampling date / time	19-Sep-2023 08:01	19-Sep-2023 08:25	19-Sep-2023 11:01	19-Sep-2023 11:11	19-Sep-2023 11:43
Compound	CAS Number	LOR	Unit		EP2312965-011	EP2312965-012	EP2312965-013	EP2312965-014	EP2312965-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.08**	**0.08**	**0.21**	**0.29**	**1.86**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.08**	**0.08**	**0.19**	**0.26**	**1.02**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.08**	**0.08**	**0.21**	**0.29**	**1.81**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**97.2**	**94.7**	**104**	**102**	**99.0**
13C8-PFOA	----	0.02	%		**105**	**99.5**	**101**	**100**	**95.5**

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312965**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57505	Issue Date	: 03-Oct-2023
Sampler	: [redacted]		
Site	: Pearce SW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 15		
No. of samples analysed	: 15		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Niamh Carthew	Lab Technichian	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5328296)									
EP2312965-002	0967_SW036_230918	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	91	92	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	91	92	0.0	0% - 20%
EP2312965-013	0967_SW028_230919	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	57	57	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	57	57	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5329510)									
EP2312965-001	0967_SW037_230918	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	46	47	2.2	0% - 20%
EP2312965-013	0967_SW028_230919	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	35	34	2.9	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5329511)									
EP2312965-001	0967_SW037_230918	ED045G: Chloride	16887-00-6	1	mg/L	251	252	0.6	0% - 20%
EP2312965-013	0967_SW028_230919	ED045G: Chloride	16887-00-6	1	mg/L	518	499	3.8	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5313426)									
EP2312965-001	0967_SW037_230918	ED093F: Calcium	7440-70-2	1	mg/L	27	28	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	19	20	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	124	131	5.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	7	8	0.0	No Limit
EP2313051-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	39	39	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5313436)									
EP2312965-011	0967_SW052_230919	ED093F: Calcium	7440-70-2	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	34	34	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	196	196	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EP2313019-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	22	22	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	27	28	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	154	155	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	24	24	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.15	17.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.03	0.04	34.4	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.96	1.14	16.8	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	2.63	2.48	5.9	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.24	0.24	0.0	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.6	0.6	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.70	0.65	7.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.98	2.98	0.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	10.8	11.0	2.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.32	0.32	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314441) - continued									
EP2313114-001	Anonymous	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.15	0.16	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.25	0.24	5.1	0% - 50%
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	0.09	0.09	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	3.1	3.2	0.0	0% - 20%
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	46.6	46.0	1.1	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314434) - continued									
EP2313114-002	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	0.26	0.27	7.1	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	66.3	59.3	11.2	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	11.2	11.0	2.3	0% - 20%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	6.16	6.28	1.9	0% - 20%
EP231P: PFAS Sums (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	51.2	50.6	1.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.15	0.17	12.5	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	51.2	50.6	1.1	0% - 20%
EP231P: PFAS Sums (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	102	95.6	6.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.07	0.08	13.3	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	95.5	88.5	7.5	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5328296)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	126	85.1	126
				<1	200 mg/L	110	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5329510)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	91.6	89.9	112
				<1	500 mg/L	107	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5329511)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	99.0	88.6	113
				<1	1000 mg/L	108	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5313426)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	104	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	84.6	108
ED093F: Dissolved Major Cations (QCLot: 5313436)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	103	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314434)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	93.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	76.3	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	100	72.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441) - continued								
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	98.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	77.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	96.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314434)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	114	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	98.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	109	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	95.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	95.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	97.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314434)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	81.0	60.5	138

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314434) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	99.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.2	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	85.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	81.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314434)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	98.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	89.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	75.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	112	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	101	64.2	133
EP231P: PFAS Sums (QCLot: 5314434)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5314441)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5314441) - continued								
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5329510)							
EP2312965-001	0967_SW037_230918	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	92.5	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5329511)							
EP2312965-001	0967_SW037_230918	ED045G: Chloride	16887-00-6	1000 mg/L	92.2	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	106	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	92.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	90.2	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	106	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# 54.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	116	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	103	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	99.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	85.3	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	74.6	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	65.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	85.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# 145	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	90.9	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	93.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	107	71.0	134

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314434) - continued							
EP2313114-002	Anonymous	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	107	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	114	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	93.8	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	79.9	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	105	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	87.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.1	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	92.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	85.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	79.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	93.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	89.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	98.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	83.8	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	76.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	85.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.2	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441) - continued							
EP2313114-001	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	105	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	101	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	78.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	# 134	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	133	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	# Not Determined	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312965**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce SW - AH	Issue Date	: 03-Oct-2023
Sampler	: [redacted]	No. of samples received	: 15
Order number	: pfas-omp Pearce	No. of samples analysed	: 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313114--002	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	54.9 %	65.0-140%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--002	Anonymous	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	145 %	72.0-129%	**Recovery greater than upper data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--002	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--002	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--002	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	134 %	70.0-130%	**Recovery greater than upper data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural							
0967_SW037_230918,	0967_SW036_230918,	----	----	----	27-Sep-2023	25-Sep-2023	**2**
0967_SW038_230918,	0967_SW047_230918,						
0967_SW048_230918,	0967_SW066_230918,						
0967_SW067_230918,	0967_SW050_230918						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	2				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	30	6.67	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / *Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918	**18-Sep-2023**	**----**	----	----	**29-Sep-2023**	02-Oct-2023	✓
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**----**	----	----	**29-Sep-2023**	03-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918	**18-Sep-2023**	**----**	----	----	**02-Oct-2023**	16-Oct-2023	✓
Clear Plastic Bottle - Natural (ED041G)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**----**	----	----	**02-Oct-2023**	17-Oct-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918	**18-Sep-2023**	**----**	----	----	**02-Oct-2023**	16-Oct-2023	✓
Clear Plastic Bottle - Natural (ED045G)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**----**	----	----	**02-Oct-2023**	17-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918	**18-Sep-2023**	**----**	----	----	**27-Sep-2023**	25-Sep-2023	×
Clear Plastic Bottle - Natural (ED093F)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**----**	----	----	**26-Sep-2023**	26-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918, 0967_QC301_230918, 0967_QC401_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918, 0967_QC301_230918, 0967_QC401_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
HDPE (no PTFE) (EP231X)							
0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918, 0967_QC301_230918, 0967_QC401_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918, 0967_QC301_230918, 0967_QC401_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_SW037_230918, 0967_SW036_230918, 0967_SW038_230918, 0967_SW047_230918, 0967_SW048_230918, 0967_SW066_230918, 0967_SW067_230918, 0967_SW050_230918, 0967_QC301_230918, 0967_QC401_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
HDPE (no PTFE) (EP231X) 0967_SW052_230919, 0967_SW049_230919, 0967_SW028_230919, 0967_SW029_230919, 0967_SW022_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312966

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Phone: Sampler: Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57506 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD036		18/09/2023 12:02 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD047		18/09/2023 01:00 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD048		18/09/2023 01:18 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD061		18/09/2023 01:47 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD062		18/09/2023 02:17 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
006	0967_SD050		18/09/2023 03:25 PM	SOIL	ALS: 1 Non ALS: 0	No	X		
007	0967_SD049		19/09/2023 08:24 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: **57506** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO [redacted]

EMAIL INVOICES TO [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_SD028		19/09/2023 11:00 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
009	0967_SD029		19/09/2023 11:09 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
010	0967_SD022		19/09/2023 11:45 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: **57506** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - AH

ORDER NO: pfas-omp [redacted]

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD036	HDPE Soil Jar	200 mL	00621222077183	Grey	No	
002	0967_SD047	HDPE Soil Jar	200 mL	00621222077098	Grey	No	
003	0967_SD048	HDPE Soil Jar	200 mL	00621222068401	Grey	No	
004	0967_SD061	HDPE Soil Jar	200 mL	00621222068409	Grey	No	
005	0967_SD062	HDPE Soil Jar	200 mL	00621222068293	Grey	No	
006	0967_SD050	HDPE Soil Jar	200 mL	00621222068339	Grey	No	
007	0967_SD049	HDPE Soil Jar	200 mL	00621222068368	Grey	No	
008	0967_SD028	HDPE Soil Jar	200 mL	00621222068342	Grey	No	
009	0967_SD029	HDPE Soil Jar	200 mL	00621122090656	Grey	No	
010	0967_SD022	HDPE Soil Jar	200 mL	00621122090615	Grey	No	

Total Bottle Count: ALS: 10, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312966**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57506	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2312966-001	18-Sep-2023 12:02	0967_SD036_230918	✓	✓
EP2312966-002	18-Sep-2023 13:00	0967_SD047_230918	✓	✓
EP2312966-003	18-Sep-2023 13:18	0967_SD048_230918	✓	✓
EP2312966-004	18-Sep-2023 13:47	0967_SD061_230918	✓	✓
EP2312966-005	18-Sep-2023 14:17	0967_SD062_230918	✓	✓
EP2312966-006	18-Sep-2023 15:25	0967_SD050_230918	✓	✓
EP2312966-007	19-Sep-2023 08:24	0967_SD049_230918	✓	✓
EP2312966-008	19-Sep-2023 11:00	0967_SD028_230918	✓	✓
EP2312966-009	19-Sep-2023 11:09	0967_SD029_230918	✓	✓
EP2312966-010	19-Sep-2023 11:45	0967_SD022_230918	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312966**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 22-Sep-2023
C-O-C number	: 57506	Issue Date	: 29-Sep-2023 15:34
Sampler	: [redacted]		
Site	: Pearce SD - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: The LOR of particular analytes has been raised for some samples due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD036_230918	0967_SD047_230918	0967_SD048_230918	0967_SD061_230918	0967_SD062_230918
				Sampling date / time	18-Sep-2023 12:02	18-Sep-2023 13:00	18-Sep-2023 13:18	18-Sep-2023 13:47	18-Sep-2023 14:17
Compound	CAS Number	LOR	Unit		EP2312966-001	EP2312966-002	EP2312966-003	EP2312966-004	EP2312966-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**29.1**	**15.8**	**23.0**	**12.4**	**78.2**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		**0.0007**	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0191**	<0.0002	**0.0003**	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0022	<0.0002	<0.0002	<0.0002	<0.0005
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0022	<0.0002	<0.0002	<0.0002	<0.0005
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0022	<0.0002	<0.0002	<0.0002	<0.0005
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	<0.0005	<0.0014
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0005
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0055	<0.0005	<0.0005	<0.0005	**0.0026**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD036_230918	0967_SD047_230918	0967_SD048_230918	0967_SD061_230918	0967_SD062_230918
				Sampling date / time	18-Sep-2023 12:02	18-Sep-2023 13:00	18-Sep-2023 13:18	18-Sep-2023 13:47	18-Sep-2023 14:17
Compound	CAS Number	LOR	Unit		EP2312966-001	EP2312966-002	EP2312966-003	EP2312966-004	EP2312966-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	<0.0005	**0.0040**
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	<0.0005	<0.0014
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0006	<0.0005	<0.0005	<0.0005	<0.0014
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0022	<0.0002	<0.0002	<0.0002	<0.0005
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0022	<0.0002	<0.0002	<0.0002	<0.0005
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		<0.0022	<0.0005	<0.0005	<0.0005	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0022	<0.0005	<0.0005	<0.0005	<0.0005
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0198**	<0.0002	**0.0003**	<0.0002	**0.0066**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0198**	<0.0002	**0.0003**	<0.0002	<0.0002
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0198**	<0.0002	**0.0003**	<0.0002	<0.0002
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**97.5**	**83.5**	**87.0**	**88.0**	**85.5**
13C8-PFOA	----	0.0002	%		**108**	**99.5**	**91.5**	**93.0**	**92.0**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD050_230918	0967_SD049_230918	0967_SD028_230918	0967_SD029_230918	0967_SD022_230918
				Sampling date / time	18-Sep-2023 15:25	19-Sep-2023 08:24	19-Sep-2023 11:00	19-Sep-2023 11:09	19-Sep-2023 11:45
Compound	CAS Number	LOR	Unit		EP2312966-006	EP2312966-007	EP2312966-008	EP2312966-009	EP2312966-010
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	0.1	%		**47.1**	**18.4**	**42.8**	**35.0**	**31.7**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0008**	**0.0005**	**0.0009**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg		**0.0038**	**0.0002**	**0.0087**	**0.0041**	**0.0030**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0003**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0022	<0.0022	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0022	<0.0022	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0022	<0.0022	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg		<0.0024	<0.0002	<0.0022	<0.0022	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg		<0.0024	<0.0002	<0.0022	<0.0022	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg		<0.0024	<0.0002	<0.0022	<0.0022	<0.0002
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg		<0.0006	<0.0006	<0.0056	<0.0056	<0.0005
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0022	<0.0022	<0.0002
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg		<0.0061	<0.0006	<0.0056	<0.0056	<0.0005

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD050_230918	0967_SD049_230918	0967_SD028_230918	0967_SD029_230918	0967_SD022_230918
			Sampling date / time	18-Sep-2023 15:25	19-Sep-2023 08:24	19-Sep-2023 11:00	19-Sep-2023 11:09	19-Sep-2023 11:45
Compound	CAS Number	LOR	Unit	EP2312966-006	EP2312966-007	EP2312966-008	EP2312966-009	EP2312966-010
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0006	<0.0005	<0.0056	<0.0056	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0006	<0.0005	<0.0056	<0.0056	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0006	<0.0005	<0.0056	<0.0006	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0024	<0.0024	<0.0022	<0.0022	<0.0002
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0024	<0.0002	<0.0022	<0.0022	<0.0002
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0022	<0.0022	<0.0005
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0024	<0.0005	<0.0022	<0.0022	<0.0005
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0024	<0.0005	<0.0022	<0.0022	<0.0005
EP231P: PFAS Sums								
Sum of PFAS	----	0.0002	mg/kg	**0.0038**	**0.0002**	**0.0095**	**0.0046**	**0.0044**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	**0.0038**	**0.0002**	**0.0095**	**0.0046**	**0.0039**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	**0.0038**	**0.0002**	**0.0095**	**0.0046**	**0.0044**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	**82.5**	**102**	**94.0**	**89.0**	**87.5**
13C8-PFOA	----	0.0002	%	**103**	**89.0**	**91.0**	**84.5**	**99.5**

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2312966**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 22-Sep-2023
C-O-C number	: 57506	Issue Date	: 29-Sep-2023
Sampler	: [redacted]		
Site	: Pearce SD - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5324627)									
EP2312966-001	0967_SD036_230918	EA055: Moisture Content	----	0.1	%	29.1	31.6	8.5	0% - 20%
EP2312966-010	0967_SD022_230918	EA055: Moisture Content	----	0.1	%	31.7	28.3	11.2	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5312663)									
EP2312966-001	0967_SD036_230918	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0007	0.0007	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0191	0.0174	9.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP2313083-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5312663)									
EP2312966-001	0967_SD036_230918	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0022	<0.0022	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0022	<0.0022	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5312663) - continued									
EP2312966-001	0967_SD036_230918	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0022	<0.0022	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0006	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2313083-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5312663)									
EP2312966-001	0967_SD036_230918	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0022	<0.0022	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0022	<0.0022	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0055	<0.0055	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0006	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0006	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0006	<0.0005	0.0	No Limit
EP2313083-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5312663)									
EP2312966-001	0967_SD036_230918	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0022	<0.0022	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0022	<0.0022	0.0	No Limit
EP2313083-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5312663)									
EP2312966-001	0967_SD036_230918	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0198	0.0181	9.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0198	0.0181	9.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0198	0.0181	9.0	No Limit
EP2313083-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5312663)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	101	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	90.0	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	84.0	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	98.1	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	66.7	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5312663)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	93.4	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	117	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.0	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	85.0	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	81.0	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	127	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	101	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	75.0	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.0	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5312663)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	77.7	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	81.3	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	82.1	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	82.1	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	119	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	117	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5312663)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5312663) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	88.7	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	87.9	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	65.6	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	64.6	54.8	124
EP231P: PFAS Sums (QCLot: 5312663)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5312663)							
EP2312966-002	0967_SD047_230918	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00044 mg/kg	95.6	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00046 mg/kg	96.8	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00047 mg/kg	74.0	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00047 mg/kg	101	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00046 mg/kg	80.1	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00048 mg/kg	75.0	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5312663)							
EP2312966-002	0967_SD047_230918	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.0025 mg/kg	88.7	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0005 mg/kg	100	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0005 mg/kg	95.1	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0005 mg/kg	94.1	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0005 mg/kg	99.0	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0005 mg/kg	75.1	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0005 mg/kg	85.0	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0005 mg/kg	86.0	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0005 mg/kg	88.9	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0005 mg/kg	92.0	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005 mg/kg	101	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5312663)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5312663) - continued							
EP2312966-002	0967_SD047_230918	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0005 mg/kg	88.0	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00125 mg/kg	105	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00125 mg/kg	80.6	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00125 mg/kg	99.5	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00125 mg/kg	97.2	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0005 mg/kg	101	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0005 mg/kg	81.0	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5312663)							
EP2312966-002	0967_SD047_230918	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00046 mg/kg	92.4	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00047 mg/kg	88.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00048 mg/kg	70.8	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00048 mg/kg	95.9	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312966**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce SD - AH	Issue Date	: 29-Sep-2023
Sampler	: [redacted]	No. of samples received	: 10
Order number	: pfas-omp Pearce	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**----**	----	----	**27-Sep-2023**	02-Oct-2023	✓
HDPE Soil Jar (EA055) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**----**	----	----	**27-Sep-2023**	03-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**22-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
HDPE Soil Jar (EP231X) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**22-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**22-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
HDPE Soil Jar (EP231X) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**22-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**22-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
HDPE Soil Jar (EP231X) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**22-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**22-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
HDPE Soil Jar (EP231X) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**22-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X) 0967_SD036_230918, 0967_SD047_230918, 0967_SD048_230918, 0967_SD061_230918, 0967_SD062_230918, 0967_SD050_230918	**18-Sep-2023**	**22-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓
HDPE Soil Jar (EP231X) 0967_SD049_230918, 0967_SD028_230918, 0967_SD029_230918, 0967_SD022_230918	**19-Sep-2023**	**22-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	01-Nov-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

Environmental Division
Perth
Work Order Reference
EP2312967

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Phone: Sampler: Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57508 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT019

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT019		18/09/2023 12:19 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57508 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT019

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT019	HDPE (no PTFE)	20 mL	00351221006119	Grey	No	
001	0967_POT019	HDPE (no PTFE)	20 mL	00351221005744	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312967**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57508	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT019		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312967-001	18-Sep-2023 12:19	0967_POT019_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312967**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57508	Issue Date	: 28-Sep-2023 13:11
Sampler	: [redacted]		
Site	: Pearce POT019		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT019_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 12:19	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312967-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT019_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 12:19	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312967-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	----	----	----	----
13C8-PFOA	----	0.02	%		**96.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312967**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57508	Issue Date	: 28-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT019		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.03	0.04	34.4	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.70	0.65	7.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.98	2.98	0.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	10.8	11.0	2.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.32	0.32	0.0	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.15	0.16	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.25	0.24	5.1	0% - 50%
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	0.09	0.09	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	3.1	3.2	0.0	0% - 20%
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314441) - continued									
EP2313114-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	0.26	0.27	7.1	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	66.3	59.3	11.2	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	11.2	11.0	2.3	0% - 20%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	6.16	6.28	1.9	0% - 20%
EP231P: PFAS Sums (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	102	95.6	6.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.07	0.08	13.3	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	95.5	88.5	7.5	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	100	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	98.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	77.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	96.7	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	95.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	95.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	97.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	85.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	81.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	101	64.2	133
EP231P: PFAS Sums (QCLot: 5314441)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	103	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	99.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	85.3	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	74.6	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	65.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	93.8	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	79.9	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	105	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	87.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.1	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	92.0	71.0	132

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	83.8	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	76.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	85.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	105	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	133	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	# Not Determined	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312967**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT019	Issue Date	: 28-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT019_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT019_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT019_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT019_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT019_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**22-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2312968

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]

ALS Compass COC Reference: 57569 **# Samples:** **Phone:** [redacted] **Sampler:** **Phone:** [redacted]

Turnaround Requirements: ~~Standard~~ Urgent

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483, 57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Re[redacted]	Received by:	Relinquished by:	Received by:
Da[redacted]	Date / Time:	Date / Time:	Date / Time:
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

COC#: 57512 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT020

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

EMAIL REPORTS TO [redacted]

EMAIL INVOICES TO [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT020		18/09/2023 12:40 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57512 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT020

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT020	HDPE (no PTFE)	20 mL	00350822058769	Grey	No	
001	0967_POT020	HDPE (no PTFE)	20 mL	00350822058736	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312968**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57512	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT020		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312968-001	18-Sep-2023 12:40	0967_POT020_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312968**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57512	Issue Date	: 26-Sep-2023 11:59
Sampler	: [redacted]		
Site	: Pearce POT020		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT020_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 12:40	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312968-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT020_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 12:40	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312968-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**92.5**	----	----	----	----
13C8-PFOA	----	0.02	%		**97.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312968**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57512	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT020		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
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This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312968**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT020	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT020_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT020_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT020_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT020_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT020_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312970

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Phone: [redacted]

Sampler:

Phone:

Turnaround Requirements: ~~Standard~~ Urgent

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57554 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT114

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT114		19/09/2023 08:56 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57554 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT114

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted] QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT114	HDPE (no PTFE)	20 mL	00351221005731	Grey	No	
001	0967_POT114	HDPE (no PTFE)	20 mL	00351221006134	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312970**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57554	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT114		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312970-001	19-Sep-2023 08:56	0967_POT114_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312970**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57554	Issue Date	: 26-Sep-2023 11:59
Sampler	: [redacted]		
Site	: Pearce POT114		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT114_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 08:56	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312970-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	**0.03**	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	**0.02**	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.11**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT114_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 08:56	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312970-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.16**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.11**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.14**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**82.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**89.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312970**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57554	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT114		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312970**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT114	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT114_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT114_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT114_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT114_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT114_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312971

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

Phone: [redacted]

ALS Compass COC Reference: 57569 # Samples: Sampler:

Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Re[redacted]	Received by:	Relinquished by:	Received by:
	IC		
Date / Time:	Date / Time:	Date / Time:	Date / Time:
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

COC#: 57556 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT124

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT124		19/09/2023 09:04 AM	WATER	ALS: 2 Non ALS: 0	No	X		

N OF CUSTODY

57556 *ALS Laboratory:* EP Perth Environmental

VHAUS - STANTEC AUSTRALIA PTY LTD

_0967_PFASOMP_23

arce POT124

ıs-omp Pearce

AGER: [redacted]

PLER:

TS TO:

ES TO:

QUOTE NO: SY/139/19 B

/ ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
0967_POT124	HDPE (no PTFE)	20 mL	00351221005883	Grey	No	
0967_POT124	HDPE (no PTFE)	20 mL	00351221006099	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312971**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57556	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT124		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312971-001	19-Sep-2023 09:04	0967_POT124_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312971**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57556	Issue Date	: 26-Sep-2023 12:00
Sampler	: [redacted]		
Site	: Pearce POT124		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT124_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:04	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312971-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.01**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT124_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:04	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312971-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**88.1**	----	----	----	----
13C8-PFOA	----	0.02	%		**98.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312971**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57556	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT124		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312971**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT124	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT124_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT124_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT124_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT124_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT124_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312972

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]

Phone: [redacted]

ALS Compass COC Reference: 57569 **# Samples:** _____ **Sampler:** [redacted]

Phone: [redacted]

Turnaround Requirements: ~~Standard~~ Urgent

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483, 57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time:	**Date / Time:**	**Date / Time:**	**Date / Time:**
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

COC#: 57560 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT099

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT099		19/09/2023 09:28 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57560 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT099

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT099	HDPE (no PTFE)	20 mL	00350822058857	Grey	No	
001	0967_POT099	HDPE (no PTFE)	20 mL	00350822058739	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312972**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57560	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT099		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312972-001	19-Sep-2023 09:28	0967_POT099_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312972**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57560	Issue Date	: 26-Sep-2023 12:00
Sampler	: [redacted]		
Site	: Pearce POT099		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT099_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:28	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312972-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.11**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.03**	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT099_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:28	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312972-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.14**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.14**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.14**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**85.4**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312972**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57560	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT099		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312972**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT099	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT099_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT099_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT099_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT099_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT099_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2312973

Telephone : -- 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager** [redacted]
Phone:

ALS Compass COC Reference: 57569 **# Samples:** **Sampler:**
Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by: [redacted]	Received by: IC	Relinquished by:	Received by:
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57561 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT031

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free Ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT031		19/09/2023 09:38 AM	WATER	ALS: 2 Non ALS: 0	No	X		

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312973**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57561	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT031		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312973-001	19-Sep-2023 09:38	0967_POT031_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312973**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57561	Issue Date	: 26-Sep-2023 12:00
Sampler	: [redacted]		
Site	: Pearce POT031		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT031_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:38	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312973-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.01**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT031_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:38	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312973-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.01**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.3**	----	----	----	----
13C8-PFOA	----	0.02	%		**91.0**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312973**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57561	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT031		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312973**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT031	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT031_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT031_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT031_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT031_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT031_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2312974

Telephone : -- 61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager** [redacted]

ALS Compass COC Reference: 57569 **# Samples:** **Phone:**

Sampler:

Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 5748
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by: [redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57564 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT052

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO [redacted]

EMAIL INVOICES TO [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT052		19/09/2023 09:46 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57564 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT052

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT052	HDPE (no PTFE)	20 mL	00350822058924	Grey	No	
001	0967_POT052	HDPE (no PTFE)	20 mL	00350822058967	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312974**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57564	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT052		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312974-001	19-Sep-2023 09:46	0967_POT052_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312974**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57564	Issue Date	: 26-Sep-2023 12:00
Sampler	: [redacted]		
Site	: Pearce POT052		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT052_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312974-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.15**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.02**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT052_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:46	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312974-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.17**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.17**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.17**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**96.0**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312974**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57564	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT052		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312974**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT052	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT052_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT052_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT052_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT052_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT052_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2312975

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 57569 **# Samples:** **Sampler:**

Phone:

Turnaround Requirements: ~~Standard~~ 57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483, 57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476. Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Re[redacted]	Received by:	Relinquished by:	Received by:
	IC		
Date / Time:	Date / Time:	Date / Time:	Date / Time:
19/9/23 2:30	19/9/23 1445		

CHAIN OF CUSTODY

(ALS) COC#: 57565 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT073

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT073		19/09/2023 09:56 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57565 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT073

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT073	HDPE (no PTFE)	20 mL	00350822058767	Grey	No	
001	0967_POT073	HDPE (no PTFE)	20 mL	00350822058992	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312975**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57565	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT073		
Sampler	: [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2312975-001	19-Sep-2023 09:56	0967_POT073_230919	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312975**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57565	Issue Date	: 26-Sep-2023 12:01
Sampler	: [redacted]		
Site	: Pearce POT073		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT073_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:56	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2312975-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.03**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT073_230919	----	----	----	----
				Sampling date / time	19-Sep-2023 09:56	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2312975-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**91.1**	----	----	----	----
13C8-PFOA	----	0.02	%		**87.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312975**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57565	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT073		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312975**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT073	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT073_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT073_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT073_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT073_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT073_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**21-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING *Intelligence*

Environmental Division
Perth
Work Order Reference
EP2312976

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]
Phone: [redacted]

ALS Compass COC Reference: 57569 # Samples: Sampler: [redacted]
Phone: [redacted]

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57494, 57493, 57490, 57486, 57476.

Turnaround Requirements: ~~Standard~~ Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]	IC		
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57569 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW124S		19/09/2023 10:44 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_MW124D		19/09/2023 10:49 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_MW218		19/09/2023 11:58 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_QC302		19/09/2023 12:01 PM	WATER	ALS: 2 Non ALS: 0	No	X			
005	0967_QC402		19/09/2023 12:02 PM	WATER	ALS: 2 Non ALS: 0	No	X			
006	0967_MW205		19/09/2023 12:40 PM	WATER	ALS: 3 Non ALS: 0	No		X		
007	0967_MW202		19/09/2023 12:54 PM	WATER	ALS: 3 Non ALS: 0	No		X		

Tuesday, September 19, 2023 6:05:31 AM

CHAIN OF CUSTODY

ALS COC#: 57569 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO [redacted]

EMAIL INVOICES TO [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW124S	Clear Plastic Bottle - Natural	125 mL	00070522068923	Green	No	
001	0967_MW124S	HDPE (no PTFE)	20 mL	00350822007987	Grey	No	
001	0967_MW124S	HDPE (no PTFE)	20 mL	00350822007744	Grey	No	
002	0967_MW124D	Clear Plastic Bottle - Natural	125 mL	00070522045617	Green	No	
002	0967_MW124D	HDPE (no PTFE)	20 mL	00350822075168	Grey	No	
002	0967_MW124D	HDPE (no PTFE)	20 mL	00350822075238	Grey	No	
003	0967_MW218	Clear Plastic Bottle - Natural	125 mL	00070522068873	Green	No	
003	0967_MW218	HDPE (no PTFE)	20 mL	00350822007996	Grey	No	
003	0967_MW218	HDPE (no PTFE)	20 mL	00350822007867	Grey	No	
004	0967_QC302	HDPE (no PTFE)	20 mL	00350822058800	Grey	No	
004	0967_QC302	HDPE (no PTFE)	20 mL	00350822058705	Grey	No	
005	0967_QC402	HDPE (no PTFE)	20 mL	00350822058838	Grey	No	
005	0967_QC402	HDPE (no PTFE)	20 mL	00350822058871	Grey	No	
006	0967_MW205	HDPE (no PTFE)	20 mL	00351221006246	Grey	No	
006	0967_MW205	HDPE (no PTFE)	20 mL	00351221006181	Grey	No	
006	0967_MW205	Clear Plastic Bottle - Natural	125 mL	00070522168019	Green	No	
007	0967_MW202	HDPE (no PTFE)	20 mL	00351221006294	Grey	No	
007	0967_MW202	HDPE (no PTFE)	20 mL	00351221006133	Grey	No	
007	0967_MW202	Clear Plastic Bottle - Natural	125 mL	00070522167779	Green	No	

Total Bottle Count: ALS: 19, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2312976**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57569	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 21-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2312976-001	19-Sep-2023 10:44	0967_MW124S_230919	✓	✓
EP2312976-002	19-Sep-2023 10:49	0967_MW124D_230919	✓	✓
EP2312976-003	19-Sep-2023 11:58	0967_MW218_230919	✓	✓
EP2312976-004	19-Sep-2023 12:01	0967_QC302_230919	✓	
EP2312976-005	19-Sep-2023 12:02	0967_QC402_230919	✓	
EP2312976-006	19-Sep-2023 12:40	0967_MW205_230919	✓	✓
EP2312976-007	19-Sep-2023 12:54	0967_MW202_230919	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2312976**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57569	Issue Date	: 03-Oct-2023 10:01
Sampler	: [redacted]		
Site	: Pearce GW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X: Variable matrix spike recovery for sample EP2313114-002 due to between-bottle heterogeneity for some high level contaminants and matrix interference.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW124S_230919	0967_MW124D_230919	0967_MW218_230919	0967_QC302_230919	0967_QC402_230919
				Sampling date / time	19-Sep-2023 10:44	19-Sep-2023 10:49	19-Sep-2023 11:58	19-Sep-2023 12:01	19-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312976-001	EP2312976-002	EP2312976-003	EP2312976-004	EP2312976-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**110**	**283**	**66**	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**110**	**283**	**66**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**168**	**74**	**25**	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**1760**	**831**	**34**	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**98**	**113**	**5**	----	----
Magnesium	7439-95-4	1	mg/L		**154**	**62**	**2**	----	----
Sodium	7440-23-5	1	mg/L		**824**	**395**	**60**	----	----
Potassium	7440-09-7	1	mg/L		**15**	**14**	**1**	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**55.3**	**30.6**	**2.80**	----	----
ø Total Cations	----	0.01	meq/L		**53.8**	**28.3**	**3.05**	----	----
ø Ionic Balance	----	0.01	%		**1.42**	**4.00**	**4.30**	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	**0.17**	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	**0.32**	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW124S_230919	0967_MW124D_230919	0967_MW218_230919	0967_QC302_230919	0967_QC402_230919
				Sampling date / time	19-Sep-2023 10:44	19-Sep-2023 10:49	19-Sep-2023 11:58	19-Sep-2023 12:01	19-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312976-001	EP2312976-002	EP2312976-003	EP2312976-004	EP2312976-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW124S_230919	0967_MW124D_230919	0967_MW218_230919	0967_QC302_230919	0967_QC402_230919
				Sampling date / time	19-Sep-2023 10:44	19-Sep-2023 10:49	19-Sep-2023 11:58	19-Sep-2023 12:01	19-Sep-2023 12:02
Compound	CAS Number	LOR	Unit		EP2312976-001	EP2312976-002	EP2312976-003	EP2312976-004	EP2312976-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	**0.49**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	**0.49**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	**0.49**	<0.01	<0.01
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**99.2**	**103**	**107**	**106**	**104**
13C8-PFOA	----	0.02	%		**97.8**	**96.8**	**104**	**103**	**90.8**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW205_230919	0967_MW202_230919	----	----	----
				Sampling date / time	19-Sep-2023 12:40	19-Sep-2023 12:54	----	----	----
Compound	CAS Number	LOR	Unit		EP2312976-006	EP2312976-007	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**120**	**148**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**120**	**148**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**2**	**285**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**988**	**269**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**17**	**39**	----	----	----
Magnesium	7439-95-4	1	mg/L		**83**	**103**	----	----	----
Sodium	7440-23-5	1	mg/L		**480**	**170**	----	----	----
Potassium	7440-09-7	1	mg/L		**30**	**13**	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**30.3**	**16.5**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**29.3**	**18.2**	----	----	----
ø **Ionic Balance**	----	0.01	%		**1.65**	**4.83**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	**16.3**	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	**30.9**	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	**196**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	**2.20**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	**4.90**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	**7.3**	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	**12.6**	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	**74.0**	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW205_230919	0967_MW202_230919	----	----	----
				Sampling date / time	19-Sep-2023 12:40	19-Sep-2023 12:54	----	----	----
Compound	CAS Number	LOR	Unit		EP2312976-006	EP2312976-007	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**4.26**	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	**4.38**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW205_230919	0967_MW202_230919	----	----	----
				Sampling date / time	19-Sep-2023 12:40	19-Sep-2023 12:54	----	----	----
Compound	CAS Number	LOR	Unit		EP2312976-006	EP2312976-007	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	**353**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	**201**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	**320**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**109**	**106**	----	----	----
13C8-PFOA	----	0.02	%		**106**	**95.7**	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2312976**	Page	: 1 of 11
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57569	Issue Date	: 03-Oct-2023
Sampler	: [redacted]		
Site	: Pearce GW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5328296)									
EP2312965-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	91	92	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	91	92	0.0	0% - 20%
EP2312965-013	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	57	57	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	57	57	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5329524)									
EP2313137-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	15	15	0.0	0% - 50%
EP2312976-001	0967_MW124S_230919	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	168	166	1.1	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5329525)									
EP2312976-001	0967_MW124S_230919	ED045G: Chloride	16887-00-6	1	mg/L	1760	1740	1.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5313436)									
EP2312965-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	34	34	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	196	196	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	12	12	0.0	0% - 50%
EP2313019-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	22	22	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	27	28	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	154	155	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	24	24	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314434)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314434) - continued									
EP2313114-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.13	0.15	17.0	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.03	0.04	34.4	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.96	1.14	16.8	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	2.63	2.48	5.9	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.24	0.24	0.0	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.6	0.6	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.70	0.65	7.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	2.98	2.98	0.0	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	10.8	11.0	2.3	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.32	0.32	0.0	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	0.15	0.16	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	0.25	0.24	5.1	0% - 50%
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	0.09	0.09	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	3.1	3.2	0.0	0% - 20%
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314434) - continued									
EP2313114-002	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	46.6	46.0	1.1	0% - 20%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	0.26	0.27	7.1	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	66.3	59.3	11.2	0% - 20%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5314441) - continued									
EP2313114-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	11.2	11.0	2.3	0% - 20%
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	6.16	6.28	1.9	0% - 20%
EP231P: PFAS Sums (QC Lot: 5314434)									
EP2313114-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	51.2	50.6	1.1	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.15	0.17	12.5	0% - 50%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	51.2	50.6	1.1	0% - 20%
EP231P: PFAS Sums (QC Lot: 5314441)									
EP2313114-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	102	95.6	6.9	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.07	0.08	13.3	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	95.5	88.5	7.5	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5328296)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	126	85.1	126
				<1	200 mg/L	110	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5329524)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	95.3	89.9	112
				<1	500 mg/L	103	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5329525)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	101	88.6	113
				<1	1000 mg/L	103	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5313436)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	105	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	104	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	103	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	102	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314434)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	93.3	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	93.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	76.3	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.1	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	100	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	98.0	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.6	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	98.1	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	77.6	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	96.7	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314434)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	114	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	95.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	98.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	95.2	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	108	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	109	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	95.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	90.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	96.6	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	92.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	87.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	95.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	97.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314434)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	101	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	81.0	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	99.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	94.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	89.2	61.0	135

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	85.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	83.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	81.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	90.4	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	91.0	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	85.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314434)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	98.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	89.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	75.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	112	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	101	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	101	64.2	133
EP231P: PFAS Sums (QCLot: 5314434)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5314441)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5329524)							
EP2312976-001	0967_MW124S_230919	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	129	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5329525)							
EP2312976-001	0967_MW124S_230919	ED045G: Chloride	16887-00-6	1000 mg/L	92.6	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	106	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	92.0	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	90.2	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	106	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# 54.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	116	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	103	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	99.4	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	85.3	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	74.6	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	65.1	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	102	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	85.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# 145	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	90.9	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	93.8	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	102	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	107	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	102	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	107	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	114	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	104	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	93.8	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	98.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	79.9	71.0	133

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5314441) - continued							
EP2313114-001	Anonymous	EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	105	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	87.4	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	97.6	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	91.1	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	105	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	92.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	85.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	79.3	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.6	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	93.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	89.2	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	98.0	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	83.8	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	76.4	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	85.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	105	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	99.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	105	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314434)							
EP2313114-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	101	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	78.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	# 134	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5314441)							
EP2313114-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	133	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	# Not Determined	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	# Not Determined	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	# Not Determined	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2312976**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce GW - AH	Issue Date	: 03-Oct-2023
Sampler	: [redacted]	No. of samples received	: 7
Order number	: pfas-omp Pearce	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313114--002	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	54.9 %	65.0-140%	**Recovery less than lower data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--002	Anonymous	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	145 %	72.0-129%	**Recovery greater than upper data quality objective**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--002	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313114--001	Anonymous	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--002	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**6:2 Fluorotelomer sulfonic acid (6:2 FTS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**8:2 Fluorotelomer sulfonic acid (8:2 FTS)**	39108-34-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--002	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	134 %	70.0-130%	**Recovery greater than upper data quality objective**
EP231D: (n:2) Fluorotelomer Sulfonic Acids	EP2313114--001	Anonymous	**10:2 Fluorotelomer sulfonic acid (10:2 FTS)**	120226-60-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 2	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	30	6.67	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**----**	----	**----**	**29-Sep-2023**	03-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**----**	----	**----**	**29-Sep-2023**	17-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**----**	----	**----**	**29-Sep-2023**	17-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**----**	----	**----**	**26-Sep-2023**	26-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_QC302_230919, 0967_QC402_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_QC302_230919, 0967_QC402_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_QC302_230919, 0967_QC402_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_QC302_230919, 0967_QC402_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_MW124S_230919, 0967_MW124D_230919, 0967_MW218_230919, 0967_QC302_230919, 0967_QC402_230919, 0967_MW205_230919, 0967_MW202_230919	**19-Sep-2023**	**21-Sep-2023**	17-Mar-2024	✓	**22-Sep-2023**	17-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313011

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: DEF19009 Client: Stantec Project Manager: [redacted]

ALS Compass COC Reference: 57569 # Samples: Phone:

Sampler:

Phone:

57565, 57564, 57561, 57554, 57560, 57556, 57506, 57487, 57483
57502, 57505, 57485, 57512, 57508, 57501, 57499, 57493, 57490, 57486, 57476.

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Re[redacted]	Received by:	Relinquished by:	Received by:
Date / Time: 19/9/23 2:30	Date / Time: 19/9/23 1445	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57476 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT014

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT014		18/09/2023 08:38 AM	WATER	ALS: 2 Non ALS: 0	No	X		

Wednesday, September 20, 2023 1:43:54 AM

CHAIN OF CUSTODY

COC#: 57476 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT014

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT014	HDPE (no PTFE)	20 mL	00350822007905	Grey	No	
001	0967_POT014	HDPE (no PTFE)	20 mL	00350822007918	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313011**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57476	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT014		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 19-Sep-2023 14:45	Issue Date	: 20-Sep-2023
Client Requested Due Date	: 29-Sep-2023	Scheduled Reporting Date	: **29-Sep-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 20.5
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313011-001	18-Sep-2023 08:38	0967_POT014_230918	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313011**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023 14:45
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57476	Issue Date	: 26-Sep-2023 11:58
Sampler	: [redacted]		
Site	: Pearce POT014		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

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ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT014_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 08:38	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313011-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT014_230918	----	----	----	----
				Sampling date / time	18-Sep-2023 08:38	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313011-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**89.9**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313011**	Page	: 1 of 6
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: 57476	Issue Date	: 26-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT014		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
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ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5313008) - continued									
EP2313074-001	Anonymous	EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5313008)									
EP2313074-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	92.6	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	99.1	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	86.2	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	100	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	83.0	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	80.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	84.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.8	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	114	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.0	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	93.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	92.2	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	106	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	84.5	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	92.6	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	98.3	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	88.4	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	75.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	93.5	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	86.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	83.8	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	71.2	64.2	133
EP231P: PFAS Sums (QCLot: 5313008)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	97.6	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	96.1	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	82.9	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	102	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	80.4	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	82.4	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	81.4	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	89.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	92.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	88.8	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	92.4	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	85.6	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	93.2	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	92.2	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	94.0	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	84.2	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	86.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5313008) - continued							
EP2313074-003	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	90.0	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	110	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	70.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	84.1	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	98.6	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	83.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	79.8	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5313008)							
EP2313074-003	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.9	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	87.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	87.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	73.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313011**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 19-Sep-2023
Site	: Pearce POT014	Issue Date	: 26-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 1	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	20	5.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / *Client Sample ID(s)*	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT014_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT014_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT014_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT014_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT014_230918	**18-Sep-2023**	**21-Sep-2023**	16-Mar-2024	✓	**21-Sep-2023**	16-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313215

Telephone : – 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_omp23 **Client:** Stantec **Project Manager:** [redacted]

Phone: [redacted]

ALS Compass COC Reference: 57730, 57729, 57735, 57732, 57730, 57729 **# Samples:** 10 **Sampler:** [redacted]

Phone: [redacted]

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57721 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT - 076

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT076		22/09/2023 09:25 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) *COC#:* **57721** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT - 076

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT076	HDPE (no PTFE)	20 mL	00350822058786	Grey	No	
001	0967_POT076	HDPE (no PTFE)	20 mL	00350822058888	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313215**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57721	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT - 076		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313215-001	22-Sep-2023 09:25	0967_POT076_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313215**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57721	Issue Date	: 27-Sep-2023 15:23
Sampler	: [redacted]		
Site	: Pearce POT - 076		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT076_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 09:25	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313215-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT076_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 09:25	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313215-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**84.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313215**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57721	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT - 076		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313215**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT - 076	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT076_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT076_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT076_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT076_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT076_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313216

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP.23 Client: Stantec Project Manage [redacted]

ALS Compass COC Reference: 57733, 57726, 57725, 57724, 57721, 57730, 57735, 57732, 57730, 57729 # Samples: 10 Phone:

Sampler: Phone:

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57723 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 128

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT128		22/09/2023 09:40 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) *COC#:* **57723** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 128

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT128	HDPE (no PTFE)	20 mL	00350822058709	Grey	No	
001	0967_POT128	HDPE (no PTFE)	20 mL	00350822058765	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313216**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57723	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 128		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313216-001	22-Sep-2023 09:40	0967_POT128_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313216**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57723	Issue Date	: 27-Sep-2023 15:35
Sampler	: [redacted]		
Site	: Pearce POT- 128		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT128_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 09:40	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313216-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.09**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.02**	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT128_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 09:40	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313216-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	**0.11**	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.11**	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.11**	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**109**	----	----	----	----	
13C8-PFOA	----	0.02	%	**90.2**	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313216**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57723	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 128		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313216**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 128	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container* / Client Sample ID(s)	*Sample Date*	*Extraction / Preparation* Date extracted	Due for extraction	Evaluation	*Analysis* Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT128_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT128_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT128_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT128_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT128_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2313217

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP.23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 57723, 57726, 57725, 57724, 57721, 57730, 57735, 57732, 57730, 57729 **# Samples:** 10 **Sampler:**

Phone:

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57724 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 030

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT030		22/09/2023 10:04 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57724 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 030

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT030	HDPE (no PTFE)	20 mL	00350822058832	Grey	No	
001	0967_POT030	HDPE (no PTFE)	20 mL	00350822058951	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313217**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57724	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 030		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313217-001	22-Sep-2023 10:04	0967_POT030_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313217**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57724	Issue Date	: 27-Sep-2023 15:23
Sampler	: [redacted]		
Site	: Pearce POT- 030		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT030_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:04	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313217-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.02**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT030_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:04	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313217-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	**0.02**	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.02**	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.02**	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**99.5**	----	----	----	----	
13C8-PFOA	----	0.02	%	**82.7**	----	----	----	----	

Environmental Division
Perth
Work Order Reference
EP2313219

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_omp.23 **Client:** Stantec **Project Manager:** [redacted]

ALS Compass COC Reference: 57723, 57726, 57725, 57724, 57721, 57738, 57736, 57735, 57732, 57730, 57729 **# Samples:** 10 **Sampler:** [redacted] **Phone:** [redacted]

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	**Received by:**	**Relinquished by:**	**Received by:**
Date / Time:	**Date / Time:** 22/9 1415	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

COC#: 57725 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 092

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free Ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT092		22/09/2023 10:33 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57725 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 092

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT092	HDPE (no PTFE)	20 mL	00350822058708	Grey	No	
001	0967_POT092	HDPE (no PTFE)	20 mL	00350822058813	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313217**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57724	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 030		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313217**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 030	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT030_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT030_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT030_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT030_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT030_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313219**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57725	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 092		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313219-001	22-Sep-2023 10:33	0967_POT092_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313219**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57725	Issue Date	: 27-Sep-2023 15:24
Sampler	: [redacted]		
Site	: Pearce POT- 092		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT092_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:33	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313219-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.02**	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.02**	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.13**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.09**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT092_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:33	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313219-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	----	----	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	----	----	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	----	----	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	----	----	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	----	----	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	----	----	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L	**0.26**	----	----	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	**0.22**	----	----	----	----	
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.24**	----	----	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%	**119**	----	----	----	----	
13C8-PFOA	----	0.02	%	**92.0**	----	----	----	----	

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313219**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57725	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 092		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313219**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 092	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT092_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT092_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT092_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT092_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT092_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313220

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 57730, 57729, 57735, 57732, 57730, 57729 **# Samples:** 10 **Sampler:**

Phone:

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: **57726** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 137

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT137		22/09/2023 10:50 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57726 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 137

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT137	HDPE (no PTFE)	20 mL	00350822058745	Grey	No	
001	0967_POT137	HDPE (no PTFE)	20 mL	00350822058937	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313220**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57726	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 137		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313220-001	22-Sep-2023 10:50	0967_POT137_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313220**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57726	Issue Date	: 27-Sep-2023 15:24
Sampler	: [redacted]		
Site	: Pearce POT- 137		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT137_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313220-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.01**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT137_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 10:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313220-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	----	----	----	----
13C8-PFOA	----	0.02	%		**93.7**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313220**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57726	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 137		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313220**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 137	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT137_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT137_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT137_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT137_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT137_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2313222

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP_23 **Client:** Stantec

Project Manager: [redacted]

Phone: [redacted]

ALS Compass COC Reference: 57723, 57726, 57725, 57724, 57721, 57738, 57735, 57732, 57730, 57729 **# Samples:** 10

Sampler: [redacted]

Phone: [redacted]

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

(ALS) COC#: 57729 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 042

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT042		22/09/2023 11:13 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57729 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 042

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT042	HDPE (no PTFE)	20 mL	00350822058836	Grey	No	
001	0967_POT042	HDPE (no PTFE)	20 mL	00350822058886	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313222**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57729	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 042		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313222-001	22-Sep-2023 11:13	0967_POT042_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313222**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57729	Issue Date	: 27-Sep-2023 15:24
Sampler	: [redacted]		
Site	: Pearce POT- 042		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT042_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 11:13	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313222-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.02**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT042_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 11:13	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313222-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.02**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.02**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**110**	----	----	----	----
13C8-PFOA	----	0.02	%		**84.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	**Low**	**High**
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313222**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57729	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 042		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313222**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 042	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT042_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT042_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT042_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT042_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT042_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313223

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_omp23 **Client:** Stantec

Project Manager: [redacted]

ALS Compass COC Reference: 57730, 57726, 57725, 57724, 57721, 57738, 57736, 57735, 57732, 57730, 57729 **# Samples:** 10

Phone: [redacted]

Sampler: [redacted]

Phone: [redacted]

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	**Received by:**	**Relinquished by:**	**Received by:**
Date / Time:	**Date / Time:** 22/9 1415	**Date / Time:**	**Date / Time:**

CHAIN OF CUSTODY

COC#: 57730 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 040

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT040		22/09/2023 11:37 AM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57730 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 040

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT040	HDPE (no PTFE)	20 mL	00350822058787	Grey	No	
001	0967_POT040	HDPE (no PTFE)	20 mL	00350822058991	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313223**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57730	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 040		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313223-001	22-Sep-2023 11:37	0967_POT040_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313223**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57730	Issue Date	: 28-Sep-2023 11:57
Sampler	: [redacted]		
Site	: Pearce POT- 040		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT040_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 11:37	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313223-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.02**	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.01**	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT040_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 11:37	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313223-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.03**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.03**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**95.7**	----	----	----	----
13C8-PFOA	----	0.02	%		**95.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313223**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57730	Issue Date	: 28-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 040		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322303)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	93.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	95.9	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	114	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	95.7	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	99.6	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322303)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	99.3	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.4	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	98.2	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	108	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.0	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	115	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	105	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322303)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	106	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	100	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.4	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	103	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	102	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	92.6	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	102	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322303)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322303) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	109	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	112	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	88.2	64.2	133
EP231P: PFAS Sums (QCLot: 5322303)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313223**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 040	Issue Date	: 28-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT040_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT040_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT040_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT040_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT040_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	7	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313224

Telephone : - 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP_23

Client: Stantec

Project Manager: [redacted]

Phone: (

ALS Compass COC Reference: 57723, 57726, 57725, 57724, 57721, 57738, 57735, 57732, 57730, 57729

Samples: 10

Sampler:

Phone: (

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57732 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 009

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

CONTACT PH [redacted]

QUOTE NO: SY/139/19 B

SAMPLER MOBILE: [redacted]

/ ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT009		22/09/2023 12:08 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57732 *ALS Laboratory:* EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 009

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT009	HDPE (no PTFE)	20 mL	00350822058815	Grey	No	
001	0967_POT009	HDPE (no PTFE)	20 mL	00350822058948	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313224**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57732	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 009		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313224-001	22-Sep-2023 12:08	0967_POT009_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313224**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57732	Issue Date	: 27-Sep-2023 15:26
Sampler	: [redacted]		
Site	: Pearce POT- 009		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT009_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:08	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313224-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.04**	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT009_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:08	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313224-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.06**	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.06**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.06**	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	----	----	----	----
13C8-PFOA	----	0.02	%		**86.6**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313224**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57732	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 009		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313224**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 009	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT009_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT009_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT009_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT009_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT009_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth

Work Order Reference
EP2313225

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP23 **Client:** Stantec **Project Manager:** [redacted]

ALS Compass COC Reference: 57723, 57726, 57725, 57721, 57724, 57730, 57728, 57735, 57732, 57730, 57729 **# Samples:** 10 **Phone:** **Sampler:** **Phone:**

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57735 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 029

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT029		22/09/2023 12:30 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

(ALS) COC#: 57735 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 029

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT029	HDPE (no PTFE)	20 mL	00350822058827	Grey	No	
001	0967_POT029	HDPE (no PTFE)	20 mL	00350822058990	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313225**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57735	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 029		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313225-001	22-Sep-2023 12:30	0967_POT029_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313225**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57735	Issue Date	: 27-Sep-2023 15:26
Sampler	: [redacted]		
Site	: Pearce POT- 029		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT029_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:30	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313225-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT029_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:30	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313225-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**103**	----	----	----	----
13C8-PFOA	----	0.02	%		**92.2**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313225**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57735	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 029		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313225**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 029	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT029_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT029_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT029_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT029_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT029_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313226

Telephone : +61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_OMP.23 **Client:** Stantec **Project Manager:** [redacted]

ALS Compass COC Reference: 57723, 57726, 57725, 57721, 57724, 57738, 57736, 57735, 57732, 57730, 57729 **# Samples:** 10 **Sampler:** [redacted] **Phone:** [redacted]

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: **57736** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 044

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT044		22/09/2023 12:42 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57736 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- 044

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_POT044	HDPE (no PTFE)	20 mL	00350822058975	Grey	No	
001	0967_POT044	HDPE (no PTFE)	20 mL	00350822058833	Grey	No	

Total Bottle Count: ALS: 2, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313226**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57736	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- 044		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313226-001	22-Sep-2023 12:42	0967_POT044_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313226**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57736	Issue Date	: 27-Sep-2023 15:27
Sampler	: [redacted]		
Site	: Pearce POT- 044		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT044_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:42	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2313226-001	--------	--------	--------	--------	
				Result	----	----	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	----	----	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	----	----	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	----	----	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	----	----	----	----	
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	----	----	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	----	----	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	----	----	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	----	----	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	----	----	----	----	

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT044_230922	----	----	----	----
				Sampling date / time	22-Sep-2023 12:42	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313226-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	----	----	----	----
13C8-PFOA	----	0.02	%		**81.5**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313226**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57736	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- 044		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313226**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- 044	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT044_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT044_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_POT044_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_POT044_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_POT044_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Environmental Division
Perth
Work Order Reference
EP2313227

Telephone : - 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFAS_omp.23 Client: Stantec

Project Manag [redacted]
Phone:

ALS Compass COC Reference: S7723, S7726, S7725, S7721, S7724, S7738, S7736, S7735, S7732, S7730, S7729 # Samples: 10

Sampler:
Phone:

Turnaround Requirements: Standard _____ Urgent _____

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
Date / Time:	Date / Time: 22/9 1415	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57738 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- Rinsate

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_QC301		22/09/2023 12:47 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_POT QC401		22/09/2023 12:49 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57738 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT- Rinsate

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_QC301	HDPE (no PTFE)	20 mL	00350822058721	Grey	No	
001	0967_QC301	HDPE (no PTFE)	20 mL	00350822058950	Grey	No	
002	0967_POT QC401	HDPE (no PTFE)	20 mL	00350822058957	Grey	No	
002	0967_POT QC401	HDPE (no PTFE)	20 mL	00350822058925	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313227**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57738	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT- Rinsate		
Sampler	: [redacted]		

Dates

Date Samples Received	: 22-Sep-2023 14:15	Issue Date	: 26-Sep-2023
Client Requested Due Date	: 04-Oct-2023	Scheduled Reporting Date	: **04-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 24.0
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313227-001	22-Sep-2023 12:47	0967_QC301_230922	✓
EP2313227-002	22-Sep-2023 12:49	0967_QC401_230922	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313227**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023 14:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57738	Issue Date	: 27-Sep-2023 15:27
Sampler	: [redacted]		
Site	: Pearce POT- Rinsate		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230922	0967_QC401_230922	----	----	----
				Sampling date / time	22-Sep-2023 12:47	22-Sep-2023 12:49	----	----	----
Compound	CAS Number	LOR	Unit		EP2313227-001	EP2313227-002	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230922	0967_QC401_230922	----	----	----
				Sampling date / time	22-Sep-2023 12:47	22-Sep-2023 12:49	----	----	----
Compound	CAS Number	LOR	Unit		EP2313227-001	EP2313227-002	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**107**	**115**	----	----	----
13C8-PFOA	----	0.02	%		**89.8**	**90.6**	----	----	----

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313227**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: 57738	Issue Date	: 27-Sep-2023
Sampler	: [redacted]		
Site	: Pearce POT- Rinsate		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5322304)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.7	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	115	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	108	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	88.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	86.9	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5322304)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	112	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	94.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	99.0	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	91.2	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	90.0	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5322304)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	112	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	89.0	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	83.3	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	98.3	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	96.7	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5322304) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	99.4	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	91.9	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	80.5	64.2	133
EP231P: PFAS Sums (QCLot: 5322304)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313227**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 22-Sep-2023
Site	: Pearce POT- Rinsate	Issue Date	: 27-Sep-2023
Sampler	: [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230922,	0967_QC401_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230922,	0967_QC401_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_QC301_230922,	0967_QC401_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230922,	0967_QC401_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_QC301_230922,	0967_QC401_230922	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**26-Sep-2023**	20-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2313262

Telephone : -- 61-8-9406 1301

ALSCompass SAMPLING Intelligence

Custody Document for Submissions via ALS Compass App

Project: Deluce Client: Mantec

Project Manager: [redacted]
Phone:

ALS Compass COC Reference: [redacted] # Samples:

Sampler:
Phone:

57772, 57772

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 26/9/22	Date / Time: 26/9 1300	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57770 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Rinsate WATER	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SW018		25/09/2023 07:35 AM	WATER	ALS: 3 Non ALS: 0	No		X		
002	0967_SW015		25/09/2023 08:53 AM	WATER	ALS: 3 Non ALS: 0	No		X		
003	0967_SW013		25/09/2023 09:02 AM	WATER	ALS: 3 Non ALS: 0	No		X		
004	0967_SW010		25/09/2023 09:10 AM	WATER	ALS: 3 Non ALS: 0	No		X		
005	0967_SW008		25/09/2023 09:39 AM	WATER	ALS: 3 Non ALS: 0	No		X		
006	0967_QC301		25/09/2023 11:41 AM	WATER	ALS: 2 Non ALS: 0	No	X			
007	0967_QC401		25/09/2023 11:41 AM	WATER	ALS: 2 Non ALS: 0	No	X			

CHAIN OF CUSTODY

ALS COC#: 57770 ALS Laboratory: EP Perth Environmental

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SW018	HDPE (no PTFE)	20 mL	00350822007865	Grey	No	
001	0967_SW018	HDPE (no PTFE)	20 mL	00350822064042	Grey	No	
001	0967_SW018	Clear Plastic Bottle - Natural	125 mL	00070522068898	Green	No	
002	0967_SW015	HDPE (no PTFE)	20 mL	00351221006014	Grey	No	
002	0967_SW015	HDPE (no PTFE)	20 mL	00351221006039	Grey	No	
002	0967_SW015	Clear Plastic Bottle - Natural	125 mL	00070522167974	Green	No	
003	0967_SW013	HDPE (no PTFE)	20 mL	00351221006163	Grey	No	
003	0967_SW013	HDPE (no PTFE)	20 mL	00351221006025	Grey	No	
003	0967_SW013	Clear Plastic Bottle - Natural	125 mL	00070522167784	Green	No	
004	0967_SW010	Clear Plastic Bottle - Natural	125 mL	00070522068953	Green	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822008013	Grey	No	
004	0967_SW010	HDPE (no PTFE)	20 mL	00350822007730	Grey	No	
005	0967_SW008	HDPE (no PTFE)	20 mL	00350822007843	Grey	No	
005	0967_SW008	HDPE (no PTFE)	20 mL	00350822007826	Grey	No	
005	0967_SW008	Clear Plastic Bottle - Natural	125 mL	00070522068948	Green	No	
006	0967_QC301	HDPE (no PTFE)	20 mL	00350822058997	Grey	No	
006	0967_QC301	HDPE (no PTFE)	20 mL	00350822058718	Grey	No	
007	0967_QC401	HDPE (no PTFE)	20 mL	00350822058903	Grey	No	
007	0967_QC401	HDPE (no PTFE)	20 mL	00350822058984	Grey	No	

Total Bottle Count: ALS: 19, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **EP2313262**		
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57770	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SW - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 26-Sep-2023 13:00	Issue Date	: 28-Sep-2023
Client Requested Due Date	: 06-Oct-2023	Scheduled Reporting Date	: **06-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 17.4
Receipt Detail	:	No. of samples received / analysed	: 7 / 7

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
EP2313262-001	25-Sep-2023 07:35	0967_SW018_230925	✓	✓
EP2313262-002	25-Sep-2023 08:53	0967_SW015_230925	✓	✓
EP2313262-003	25-Sep-2023 09:02	0967_SW013_230925	✓	✓
EP2313262-004	25-Sep-2023 09:10	0967_SW010_230925	✓	✓
EP2313262-005	25-Sep-2023 09:39	0967_SW008_230925	✓	✓
EP2313262-006	25-Sep-2023 11:41	0967_QC301_230925	✓	
EP2313262-007	25-Sep-2023 11:41	0967_QC401_230925	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313262**	Page	: 1 of 8
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023 13:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 28-Sep-2023
C-O-C number	: 57770	Issue Date	: 06-Oct-2023 13:58
Sampler	: [redacted]		
Site	: Pearce SW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X: The LOR has been raised for certain analytes on particular samples due to matrix interference.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW018_230925	0967_SW015_230925	0967_SW013_230925	0967_SW010_230925	0967_SW008_230925
				Sampling date / time	25-Sep-2023 07:35	25-Sep-2023 08:53	25-Sep-2023 09:02	25-Sep-2023 09:10	25-Sep-2023 09:39
Compound	CAS Number	LOR	Unit		EP2313262-001	EP2313262-002	EP2313262-003	EP2313262-004	EP2313262-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		7	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		163	65	58	50	86
Total Alkalinity as CaCO3	----	1	mg/L		170	65	58	50	86
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		8	9	11	12	10
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		17	36	37	39	31
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		32	12	12	9	20
Magnesium	7439-95-4	1	mg/L		5	4	3	3	4
Sodium	7440-23-5	1	mg/L		43	36	36	38	35
Potassium	7440-09-7	1	mg/L		6	5	4	5	4
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		4.04	2.50	2.43	2.35	2.80
ø Total Cations	----	0.01	meq/L		4.03	2.62	2.51	2.48	2.95
ø Ionic Balance	----	0.01	%		0.13	2.35	1.66	2.65	2.62
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	1.26	1.58	2.53	1.51
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		0.03	2.95	1.96	2.78	1.67
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.47	14.0	18.3	26.0	15.6
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		0.04	0.93	0.70	1.12	0.77
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		2.71	18.6	38.3	61.0	55.5
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	0.07	<0.04	<0.04	<0.04
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	0.7	1.0	1.8	1.0
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	0.77	1.08	1.89	1.17
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		0.07	4.19	5.83	7.92	6.12

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW018_230925	0967_SW015_230925	0967_SW013_230925	0967_SW010_230925	0967_SW008_230925
				Sampling date / time	25-Sep-2023 07:35	25-Sep-2023 08:53	25-Sep-2023 09:02	25-Sep-2023 09:10	25-Sep-2023 09:39
Compound	CAS Number	LOR	Unit		EP2313262-001	EP2313262-002	EP2313262-003	EP2313262-004	EP2313262-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	**0.35**	**0.51**	**0.82**	**0.50**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.03**	**0.73**	**1.13**	**1.72**	**1.20**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	**0.03**	**0.05**	**0.07**	**0.04**
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	**0.03**	**0.04**	**0.14**	**0.19**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	**0.05**	**0.15**	**0.09**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_SW018_230925	0967_SW015_230925	0967_SW013_230925	0967_SW010_230925	0967_SW008_230925
				Sampling date / time	25-Sep-2023 07:35	25-Sep-2023 08:53	25-Sep-2023 09:02	25-Sep-2023 09:10	25-Sep-2023 09:39
Compound	CAS Number	LOR	Unit		EP2313262-001	EP2313262-002	EP2313262-003	EP2313262-004	EP2313262-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**3.35**	**44.6**	**70.5**	**108**	**85.4**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**3.18**	**32.6**	**56.6**	**87.0**	**71.1**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**3.28**	**40.6**	**67.8**	**104**	**82.7**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**115**	**120**	**96.5**	**102**	**108**
13C8-PFOA	----	0.02	%		**113**	**112**	**119**	**104**	**110**

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC301_230925	0967_QC401_230925	----	----	----
				Sampling date / time	25-Sep-2023 11:41	25-Sep-2023 11:41	----	----	----
Compound	CAS Number	LOR	Unit		EP2313262-006	EP2313262-007	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SURFACE WATER (Matrix: WATER)				Sample ID	0967_QC301_230925	0967_QC401_230925	----	----	----
				Sampling date / time	25-Sep-2023 11:41	25-Sep-2023 11:41	----	----	----
Compound	CAS Number	LOR	Unit		EP2313262-006	EP2313262-007	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**108**	**128**	----	----	----
13C8-PFOA	----	0.02	%		**106**	**114**	----	----	----

Surrogate Control Limits

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313262**	Page	: 1 of 9
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 28-Sep-2023
C-O-C number	: 57770	Issue Date	: 06-Oct-2023
Sampler	: [redacted]		
Site	: Pearce SW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 7		
No. of samples analysed	: 7		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5333141)									
EP2313250-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	137	137	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	137	137	0.0	0% - 20%
EP2313262-002	0967_SW015_230925	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	65	65	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	65	65	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5336210)									
EP2313262-001	0967_SW018_230925	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	8	0.0	No Limit
EP2313263-006	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	79	78	1.8	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5336211)									
EP2313262-001	0967_SW018_230925	ED045G: Chloride	16887-00-6	1	mg/L	17	17	0.0	0% - 50%
EP2313263-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1390	1400	1.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5327986)									
EP2313262-001	0967_SW018_230925	ED093F: Calcium	7440-70-2	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	43	43	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	7	0.0	No Limit
EP2313263-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	54	54	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	177	178	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	550	550	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	15	15	0.0	0% - 50%

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329797) - continued									
EP2313398-001	Anonymous	EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5333141)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	96.6	85.1	126
				<1	200 mg/L	96.2	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336210)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	89.9	112
				<1	500 mg/L	98.7	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5336211)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	99.9	88.6	113
				<1	1000 mg/L	101	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5327986)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.7	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.1	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.2	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329745)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	90.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.9	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329797)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	110	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.3	53.0	142

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329745)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	98.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	102	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	84.2	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329797)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	103	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329745)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	100	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	82.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.1	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	105	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.8	61.0	135

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329797)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	87.9	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	87.9	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	102	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	114	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329745)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	92.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	106	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	91.3	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329797)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	118	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.4	64.2	133
EP231P: PFAS Sums (QCLot: 5329745)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5329797)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336210)							
EP2313262-001	0967_SW018_230925	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	117	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5336211)							
EP2313262-001	0967_SW018_230925	ED045G: Chloride	16887-00-6	1000 mg/L	99.9	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	104	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	115	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.6	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	92.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	101	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	102	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	102	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	105	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	97.6	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	108	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	101	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	98.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	98.5	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	83.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	113	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	109	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	95.4	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	123	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	100	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	104	64.0	140

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329797) - continued							
EP2313398-001	Anonymous	EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	98.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	91.5	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313262**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Site	: Pearce SW - AH	Issue Date	: 06-Oct-2023
Sampler	: [redacted]	No. of samples received	: 7
Order number	: pfas-omp Pearce	No. of samples analysed	: 7

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	28	3.57	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	28	3.57	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_SW018_230925, 0967_SW015_230925, 0967_SW013_230925, 0967_SW010_230925, 0967_SW008_230925	**25-Sep-2023**	**----**	----	----	**02-Oct-2023**	09-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_SW018_230925, 0967_SW015_230925, 0967_SW013_230925, 0967_SW010_230925, 0967_SW008_230925	**25-Sep-2023**	**----**	----	----	**06-Oct-2023**	23-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_SW018_230925, 0967_SW015_230925, 0967_SW013_230925, 0967_SW010_230925, 0967_SW008_230925	**25-Sep-2023**	**----**	----	----	**06-Oct-2023**	23-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_SW018_230925, 0967_SW015_230925, 0967_SW013_230925, 0967_SW010_230925, 0967_SW008_230925	**25-Sep-2023**	**----**	----	----	**29-Sep-2023**	02-Oct-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW018_230925, 0967_SW013_230925, 0967_SW008_230925, 0967_QC401_230925, 0967_SW015_230925, 0967_SW010_230925, 0967_QC301_230925,	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW018_230925, 0967_SW013_230925, 0967_SW008_230925, 0967_QC401_230925, 0967_SW015_230925, 0967_SW010_230925, 0967_QC301_230925,	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_SW018_230925, 0967_SW013_230925, 0967_SW008_230925, 0967_QC401_230925, 0967_SW015_230925, 0967_SW010_230925, 0967_QC301_230925,	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_SW018_230925, 0967_SW013_230925, 0967_SW008_230925, 0967_QC401_230925, 0967_SW015_230925, 0967_SW010_230925, 0967_QC301_230925,	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_SW018_230925, 0967_SW013_230925, 0967_SW008_230925, 0967_QC401_230925, 0967_SW015_230925, 0967_SW010_230925, 0967_QC301_230925,	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	28	**3.57**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	28	**3.57**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

Perth
Work Order Reference
EP2313263

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: Defence Client: Abantec

Project Manager: [redacted]
Phone: [redacted]

ALS Compass COC Reference: [redacted] # Samples:

Sampler:
Phone:

57772, 57776

Turnaround Requirements: Standard Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 26/9/22	Date / Time: 26/9 1300	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: 57771 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free Ice / frozen Ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_MW109		25/09/2023 07:23 AM	WATER	ALS: 3 Non ALS: 0	No	X		
002	0967_MW107		25/09/2023 07:27 AM	WATER	ALS: 3 Non ALS: 0	No	X		
003	0967_MW110		25/09/2023 07:42 AM	WATER	ALS: 3 Non ALS: 0	No	X		
004	0967_MW103		25/09/2023 08:01 AM	WATER	ALS: 3 Non ALS: 0	No	X		
005	0967_MW104		25/09/2023 08:25 AM	WATER	ALS: 3 Non ALS: 0	No	X		
006	0967_MW105		25/09/2023 08:26 AM	WATER	ALS: 3 Non ALS: 0	No	X		
007	0967_MW134D		25/09/2023 09:17 AM	WATER	ALS: 3 Non ALS: 0	No	X		

Tuesday, September 26, 2023 12:47:54 AM

CHAIN OF CUSTODY

COC#: 57771 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	0967_MW134S		25/09/2023 09:17 AM	WATER	ALS: 3 Non ALS: 0	No	X		
009	0967_MW132D		25/09/2023 09:48 AM	WATER	ALS: 5 Non ALS: 0	No	X		
010	0967_MW132S		25/09/2023 09:49 AM	WATER	ALS: 3 Non ALS: 0	No	X		
011	0967_MW052		25/09/2023 10:11 AM	WATER	ALS: 3 Non ALS: 0	No	X		
012	0967_MW053		25/09/2023 10:20 AM	WATER	ALS: 5 Non ALS: 0	No	X		
013	0967_MW015		25/09/2023 10:31 AM	WATER	ALS: 3 Non ALS: 0	No	X		
014	0967_MW101		25/09/2023 10:32 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57771 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	WA OMP Water Suite WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
015	0967_MW102		25/09/2023 10:33 AM	WATER	ALS: 3 Non ALS: 0	No	X		
016	0967_MW055		25/09/2023 11:05 AM	WATER	ALS: 3 Non ALS: 0	No	X		
017	0967_MW155S		25/09/2023 11:24 AM	WATER	ALS: 3 Non ALS: 0	No	X		

CHAIN OF CUSTODY

ALS COC#: 57771 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp [redacted]

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER:

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B [redacted] / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_MW109	HDPE (no PTFE)	20 mL	00350822007897	Grey	No	
001	0967_MW109	HDPE (no PTFE)	20 mL	00350822007988	Grey	No	
001	0967_MW109	Clear Plastic Bottle - Natural	125 mL	00070522068738	Green	No	
001	0967_MW109	Clear Plastic Bottle - Natural	125 mL	00070522167714	Green	No	
002	0967_MW107	HDPE (no PTFE)	20 mL	00351221006061	Grey	No	
002	0967_MW107	HDPE (no PTFE)	20 mL	00351221006200	Grey	No	
002	0967_MW107	Clear Plastic Bottle - Natural	125 mL	00070522167791	Green	No	
003	0967_MW110	HDPE (no PTFE)	20 mL	00351221006016	Grey	No	
003	0967_MW110	HDPE (no PTFE)	20 mL	00351221006287	Grey	No	
003	0967_MW110	HDPE (no PTFE)	20 mL	00351221005745	Grey	No	
004	0967_MW103	HDPE (no PTFE)	20 mL	00351221006063	Grey	No	
004	0967_MW103	Clear Plastic Bottle - Natural	125 mL	00070522088319	Green	No	
004	0967_MW103	HDPE (no PTFE)	20 mL	00350822062539	Grey	No	
005	0967_MW104	Clear Plastic Bottle - Natural	125 mL	00070522068234	Green	No	
005	0967_MW104	HDPE (no PTFE)	20 mL	00350822062498	Grey	No	
005	0967_MW104	HDPE (no PTFE)	20 mL	00351221005986	Grey	No	
006	0967_MW105	HDPE (no PTFE)	20 mL	00351221006238	Grey	No	
006	0967_MW105	Clear Plastic Bottle - Natural	125 mL	00070522167743	Green	No	
006	0967_MW105	HDPE (no PTFE)	20 mL	00350822007750	Grey	No	
007	0967_MW134D	HDPE (no PTFE)	20 mL	00350822007838	Grey	No	
007	0967_MW134D	Clear Plastic Bottle - Natural	125 mL	00070522068955	Green	No	
007	0967_MW134D	Clear Plastic Bottle - Natural	125 mL	00070522068281	Green	No	
008	0967_MW134S	HDPE (no PTFE)	20 mL	00350822062628	Grey	No	
008	0967_MW134S	HDPE (no PTFE)	20 mL	00350822062497	Grey	No	
008	0967_MW134S	Clear Plastic Bottle - Natural	125 mL	00070522068843	Green	No	
009	0967_MW132D	HDPE (no PTFE)	20 mL	00350822007980	Grey	No	
009	0967_MW132D						

CHAIN OF CUSTODY

ALS COC#: 57771 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce GW - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

009	0967_MW132D	HDPE (no PTFE)	20 mL	00350822007946	Grey	No	
009	0967_MW132D	HDPE (no PTFE)	20 mL	00350822058966	Grey	No	
009	0967_MW132D	HDPE (no PTFE)	20 mL	00350822058720	Grey	No	
010	0967_MW132S	HDPE (no PTFE)	20 mL	00350822007885	Grey	No	
010	0967_MW132S	Clear Plastic Bottle - Natural	125 mL	00070522068962	Green	No	
010	0967_MW132S	Clear Plastic Bottle - Natural	125 mL	00070522068829	Green	No	
011	0967_MW052	HDPE (no PTFE)	20 mL	00350822007831	Grey	No	
011	0967_MW052	HDPE (no PTFE)	20 mL	00350822064041	Grey	No	
011	0967_MW052	HDPE (no PTFE)	20 mL	00350822007914	Grey	No	
012	0967_MW053	HDPE (no PTFE)	20 mL	00350822007825	Grey	No	
012	0967_MW053	Clear Plastic Bottle - Natural	125 mL	00070522068867	Green	No	
012	0967_MW053	HDPE (no PTFE)	20 mL	00350822007878	Grey	No	
012	0967_MW053	HDPE (no PTFE)	20 mL	00350822007958	Grey	No	
012	0967_MW053	HDPE (no PTFE)	20 mL	00350822007855	Grey	No	
013	0967_MW015	HDPE (no PTFE)	20 mL	00350822007848	Grey	No	
013	0967_MW015	Clear Plastic Bottle - Natural	125 mL	00070522068832	Green	No	
013	0967_MW015	Clear Plastic Bottle - Natural	125 mL	00070522068841	Green	No	
014	0967_MW101	HDPE (no PTFE)	20 mL	00350822007932	Grey	No	
014	0967_MW101	HDPE (no PTFE)	20 mL	00350822007964	Grey	No	
014	0967_MW101	HDPE (no PTFE)	20 mL	00350822007984	Grey	No	
015	0967_MW102	HDPE (no PTFE)	20 mL	00350822007888	Grey	No	
015	0967_MW102	Clear Plastic Bottle - Natural	125 mL	00070522068924	Green	No	
015	0967_MW102	HDPE (no PTFE)	20 mL	00350822007745	Grey	No	
016	0967_MW055	HDPE (no PTFE)	20 mL	00350822007998	Grey	No	
016	0967_MW055	Clear Plastic Bottle - Natural	125 mL	00070522068979	Green	No	
016	0967_MW055	HDPE (no PTFE)	20 mL	00351221005907	Grey	No	
017	0967_MW155S						

12:47:54 AM

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313263**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57771	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce GW - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 26-Sep-2023 13:00	Issue Date	: 28-Sep-2023
Client Requested Due Date	: 06-Oct-2023	Scheduled Reporting Date	: **06-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 17.4
Receipt Detail	:	No. of samples received / analysed	: 17 / 17

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-01 Major Cations (Ca, Mg, Na, K)
EP2313263-001	25-Sep-2023 07:23	0967_MW109_230925	✓	✓	
EP2313263-002	25-Sep-2023 07:27	0967_MW107_230925	✓	✓	
EP2313263-003	25-Sep-2023 07:42	0967_MW110_230925	✓	✓	
EP2313263-004	25-Sep-2023 08:01	0967_MW103_230925	✓	✓	
EP2313263-005	25-Sep-2023 08:25	0967_MW104_230925	✓	✓	
EP2313263-006	25-Sep-2023 08:26	0967_MW105_230925	✓	✓	
EP2313263-007	25-Sep-2023 09:17	0967_MW134D_230925	✓	✓	
EP2313263-008	25-Sep-2023 09:17	0967_MW134S_230925	✓	✓	
EP2313263-009	25-Sep-2023 09:48	0967_MW132D_230925	✓	✓	
EP2313263-010	25-Sep-2023 09:49	0967_MW132S_230925	✓	✓	
EP2313263-011	25-Sep-2023 10:11	0967_MW052_230925	✓	✓	
EP2313263-012	25-Sep-2023 10:20	0967_MW053_230925	✓	✓	
EP2313263-013	25-Sep-2023 10:31	0967_MW015_230925	✓	✓	
EP2313263-014	25-Sep-2023 10:32	0967_MW101_230925	✓	✓	
EP2313263-015	25-Sep-2023 10:33	0967_MW102_230925	✓		✓
EP2313263-016	25-Sep-2023 11:05	0967_MW055_230925	✓	✓	
EP2313263-017	25-Sep-2023 11:24	0967_MW155S_230925	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313263**	Page	: 1 of 15
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023 13:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 28-Sep-2023
C-O-C number	: 57771	Issue Date	: 06-Oct-2023 13:34
Sampler	: [redacted]		
Site	: Pearce GW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 17		
No. of samples analysed	: 17		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP231X: Sample "EP2313263_011" required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly for particular analytes.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW109_230925	0967_MW107_230925	0967_MW110_230925	0967_MW103_230925	0967_MW104_230925
				Sampling date / time	25-Sep-2023 07:23	25-Sep-2023 07:27	25-Sep-2023 07:42	25-Sep-2023 08:01	25-Sep-2023 08:25
Compound	CAS Number	LOR	Unit		EP2313263-001	EP2313263-002	EP2313263-003	EP2313263-004	EP2313263-005
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**2**	**18**	**10**	**22**	**3**
Total Alkalinity as CaCO3	----	1	mg/L		**2**	**18**	**10**	**22**	**3**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**187**	**298**	**87**	**126**	**100**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**2230**	**2820**	**1290**	**1470**	**1470**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**80**	**82**	**34**	**58**	**57**
Magnesium	7439-95-4	1	mg/L		**272**	**278**	**107**	**183**	**200**
Sodium	7440-23-5	1	mg/L		**988**	**1380**	**623**	**615**	**571**
Potassium	7440-09-7	1	mg/L		**11**	**14**	**11**	**19**	**19**
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**66.8**	**86.1**	**38.4**	**44.5**	**43.6**
ø **Total Cations**	----	0.01	meq/L		**69.6**	**87.4**	**37.9**	**45.2**	**44.6**
ø **Ionic Balance**	----	0.01	%		**2.05**	**0.72**	**0.68**	**0.74**	**1.16**
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.04**	<0.02	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.06**	**0.02**	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.40**	**0.02**	<0.01	**0.09**	**0.02**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.26**	**0.02**	<0.01	**0.10**	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.02**	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**0.11**	**0.02**	<0.02	**0.03**	<0.02

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW109_230925	0967_MW107_230925	0967_MW110_230925	0967_MW103_230925	0967_MW104_230925
				Sampling date / time	25-Sep-2023 07:23	25-Sep-2023 07:27	25-Sep-2023 07:42	25-Sep-2023 08:01	25-Sep-2023 08:25
Compound	CAS Number	LOR	Unit		EP2313263-001	EP2313263-002	EP2313263-003	EP2313263-004	EP2313263-005
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.03**	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW109_230925	0967_MW107_230925	0967_MW110_230925	0967_MW103_230925	0967_MW104_230925
				Sampling date / time	25-Sep-2023 07:23	25-Sep-2023 07:27	25-Sep-2023 07:42	25-Sep-2023 08:01	25-Sep-2023 08:25
Compound	CAS Number	LOR	Unit		EP2313263-001	EP2313263-002	EP2313263-003	EP2313263-004	EP2313263-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.92**	**0.08**	<0.01	**0.22**	**0.02**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.66**	**0.04**	<0.01	**0.19**	**0.02**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.86**	**0.06**	<0.01	**0.22**	**0.02**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**112**	**110**	**113**	**103**	**106**
13C8-PFOA	----	0.02	%		**106**	**102**	**106**	**99.6**	**106**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	0967_MW105_230925	0967_MW134D_230925	0967_MW134S_230925	0967_MW132D_230925	0967_MW132S_230925
				Sampling date / time	25-Sep-2023 08:26	25-Sep-2023 09:17	25-Sep-2023 09:17	25-Sep-2023 09:48	25-Sep-2023 09:49
					EP2313263-006	EP2313263-007	EP2313263-008	EP2313263-009	EP2313263-010
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		38	120	6	216	5
Total Alkalinity as CaCO3	----	1	mg/L		38	120	6	216	5
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		79	8	118	9	84
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		1390	343	1940	620	1610
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		54	6	72	79	73
Magnesium	7439-95-4	1	mg/L		177	13	248	62	209
Sodium	7440-23-5	1	mg/L		550	198	788	231	650
Potassium	7440-09-7	1	mg/L		15	14	23	30	16
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		41.6	12.2	57.3	22.0	47.3
ø Total Cations	----	0.01	meq/L		41.6	10.3	58.9	19.9	49.5
ø Ionic Balance	----	0.01	%		0.05	8.41	1.35	5.09	2.34
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	0.76	0.07
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	0.02	0.65	0.08
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		0.08	<0.01	0.08	4.18	0.43
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	<0.02	0.13	0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		0.07	0.02	0.02	0.33	0.11
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	<0.1	0.3	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	<0.02	0.24	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	1.23	0.09

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW105_230925	0967_MW134D_230925	0967_MW134S_230925	0967_MW132D_230925	0967_MW132S_230925
				Sampling date / time	25-Sep-2023 08:26	25-Sep-2023 09:17	25-Sep-2023 09:17	25-Sep-2023 09:48	25-Sep-2023 09:49
Compound	CAS Number	LOR	Unit		EP2313263-006	EP2313263-007	EP2313263-008	EP2313263-009	EP2313263-010
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	**0.15**	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	<0.01	**0.29**	**0.02**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW105_230925	0967_MW134D_230925	0967_MW134S_230925	0967_MW132D_230925	0967_MW132S_230925
				Sampling date / time	25-Sep-2023 08:26	25-Sep-2023 09:17	25-Sep-2023 09:17	25-Sep-2023 09:48	25-Sep-2023 09:49
Compound	CAS Number	LOR	Unit		EP2313263-006	EP2313263-007	EP2313263-008	EP2313263-009	EP2313263-010
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**0.15**	**0.02**	**0.12**	**8.26**	**0.82**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.15**	**0.02**	**0.10**	**4.51**	**0.54**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.15**	**0.02**	**0.10**	**7.48**	**0.72**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**112**	**115**	**109**	**114**	**112**
13C8-PFOA	----	0.02	%		**110**	**119**	**115**	**106**	**109**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW052_230925	0967_MW053_230925	0967_MW015_230925	0967_MW101_230925	0967_MW102_230925
				Sampling date / time	25-Sep-2023 10:11	25-Sep-2023 10:20	25-Sep-2023 10:31	25-Sep-2023 10:32	25-Sep-2023 10:33
Compound	CAS Number	LOR	Unit		EP2313263-011	EP2313263-012	EP2313263-013	EP2313263-014	EP2313263-015
					Result	Result	Result	Result	Result
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		54	43	153	140	----
Total Alkalinity as CaCO3	----	1	mg/L		54	43	153	140	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		36	21	36	216	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		197	228	79	977	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		1	8	6	44	93
Magnesium	7439-95-4	1	mg/L		2	5	12	83	248
Sodium	7440-23-5	1	mg/L		161	142	100	533	915
Potassium	7440-09-7	1	mg/L		2	3	3	10	17
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		7.38	7.73	6.03	34.8	----
ø Total Cations	----	0.01	meq/L		7.27	7.06	5.71	32.5	----
ø Ionic Balance	----	0.01	%		0.80	4.49	2.74	3.55	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		10.4	3.16	2.22	9.18	0.31
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		9.13	2.64	2.14	12.2	0.38
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		90.2	30.3	21.5	123	1.90
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		2.80	4.26	4.24	4.44	0.08
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		267	36.7	83.2	109	1.71
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.50	<0.02	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		5.6	1.3	0.8	2.4	0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		4.28	1.44	1.22	3.80	0.09
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		29.8	7.85	8.21	20.9	0.58

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW052_230925	0967_MW053_230925	0967_MW015_230925	0967_MW101_230925	0967_MW102_230925
				Sampling date / time	25-Sep-2023 10:11	25-Sep-2023 10:20	25-Sep-2023 10:31	25-Sep-2023 10:32	25-Sep-2023 10:33
Compound	CAS Number	LOR	Unit		EP2313263-011	EP2313263-012	EP2313263-013	EP2313263-014	EP2313263-015
					Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**2.26**	**0.55**	**0.69**	**2.05**	**0.06**
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**5.02**	**1.40**	**1.82**	**9.75**	**0.10**
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.50	<0.02	**0.03**	**0.23**	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		**0.05**	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.15**	<0.02	<0.02	**0.03**	<0.02
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW052_230925	0967_MW053_230925	0967_MW015_230925	0967_MW101_230925	0967_MW102_230925
				Sampling date / time	25-Sep-2023 10:11	25-Sep-2023 10:20	25-Sep-2023 10:31	25-Sep-2023 10:32	25-Sep-2023 10:33
Compound	CAS Number	LOR	Unit		EP2313263-011	EP2313263-012	EP2313263-013	EP2313263-014	EP2313263-015
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**427**	**89.6**	**126**	**297**	**5.31**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**357**	**67.0**	**105**	**232**	**3.61**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**414**	**82.7**	**120**	**280**	**4.85**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**90.0**	**102**	**91.2**	**98.0**	**116**
13C8-PFOA	----	0.02	%		**108**	**110**	**116**	**113**	**112**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW055_230925	0967_MW155S_230925	----	----	----
				Sampling date / time	25-Sep-2023 11:05	25-Sep-2023 11:24	----	----	----
Compound	CAS Number	LOR	Unit		EP2313263-016	EP2313263-017	--------	--------	--------
					Result	Result	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**223**	**15**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**223**	**15**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**25**	**234**	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**27**	**2210**	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**21**	**75**	----	----	----
Magnesium	7439-95-4	1	mg/L		**7**	**247**	----	----	----
Sodium	7440-23-5	1	mg/L		**86**	**959**	----	----	----
Potassium	7440-09-7	1	mg/L		**3**	**23**	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**5.74**	**67.5**	----	----	----
ø Total Cations	----	0.01	meq/L		**5.44**	**66.4**	----	----	----
ø Ionic Balance	----	0.01	%		**2.65**	**0.85**	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		**0.76**	**0.31**	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		**0.95**	**0.28**	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**8.17**	**1.63**	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		**1.35**	**0.02**	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**14.5**	**0.06**	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		**0.02**	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		**0.2**	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		**0.30**	**0.07**	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		**1.60**	**0.44**	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW055_230925	0967_MW155S_230925	----	----	----
				Sampling date / time	25-Sep-2023 11:05	25-Sep-2023 11:24	----	----	----
Compound	CAS Number	LOR	Unit		EP2313263-016	EP2313263-017	--------	--------	--------
					Result	Result	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		**0.22**	**0.04**	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.59**	**0.04**	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		**0.04**	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	0967_MW055_230925	0967_MW155S_230925	----	----	----
				Sampling date / time	25-Sep-2023 11:05	25-Sep-2023 11:24	----	----	----
Compound	CAS Number	LOR	Unit		EP2313263-016	EP2313263-017	--------	--------	--------
					Result	Result	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		**28.7**	**2.89**	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**22.7**	**1.69**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		**26.3**	**2.59**	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**111**	**112**	----	----	----
13C8-PFOA	----	0.02	%		**111**	**107**	----	----	----

Surrogate Control Limits

Sub-Matrix: **GROUNDWATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313263**	Page	: 1 of 13
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 28-Sep-2023
C-O-C number	: 57771	Issue Date	: 06-Oct-2023
Sampler	: [redacted]		
Site	: Pearce GW - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 17		
No. of samples analysed	: 17		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5333149)									
EP2313263-002	0967_MW107_230925	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	18	18	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	18	18	0.0	0% - 50%
EP2313263-012	0967_MW053_230925	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	43	43	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	43	43	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5336207)									
EP2313263-017	0967_MW155S_230925	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	234	234	0.0	0% - 20%
EP2313342-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1440	1430	0.7	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5336210)									
EP2313262-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	8	0.0	No Limit
EP2313263-006	0967_MW105_230925	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	79	78	1.8	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5336208)									
EP2313263-017	0967_MW155S_230925	ED045G: Chloride	16887-00-6	1	mg/L	2210	2200	0.8	0% - 20%
EP2313342-008	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1120	1110	0.9	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5336211)									
EP2313262-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	17	17	0.0	0% - 50%
EP2313263-006	0967_MW105_230925	ED045G: Chloride	16887-00-6	1	mg/L	1390	1400	1.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5327986)									
EP2313262-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	32	32	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5327986) - continued									
EP2313262-001	Anonymous	ED093F: Sodium	7440-23-5	1	mg/L	43	43	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	7	0.0	No Limit
EP2313263-006	0967_MW105_230925	ED093F: Calcium	7440-70-2	1	mg/L	54	54	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	177	178	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	550	550	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	15	15	0.0	0% - 50%
ED093F: Dissolved Major Cations (QC Lot: 5327987)									
EP2313263-016	0967_MW055_230925	ED093F: Calcium	7440-70-2	1	mg/L	21	21	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	7	7	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	86	86	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5329763)									
EP2313263-009	0967_MW132D_230925	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	4.18	3.92	6.3	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.33	0.40	17.8	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.76	0.71	7.9	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.65	0.60	7.9	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.13	0.11	9.7	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329763)									
EP2313263-009	0967_MW132D_230925	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.29	0.29	0.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.24	0.24	0.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	1.23	1.18	4.2	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.15	0.14	8.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.3	0.3	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329797) - continued									
EP2313398-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5329763)									
EP2313263-009	0967_MW132D_230925	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329763)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329763) - continued									
EP2313263-009	0967_MW132D_230925	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5329763)									
EP2313263-009	0967_MW132D_230925	EP231X: Sum of PFAS	----	0.01	µg/L	8.26	7.94	4.0	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	4.51	4.32	4.3	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	7.48	7.23	3.4	0% - 20%
EP231P: PFAS Sums (QC Lot: 5329797)									
EP2313398-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED037P: Alkalinity by PC Titrator (QCLot: 5333149)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	20 mg/L	95.6	85.1	126
				<1	200 mg/L	95.5	90.5	111
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336207)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	106	89.9	112
				<1	500 mg/L	92.2	89.9	112
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336210)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	89.9	112
				<1	500 mg/L	98.7	89.9	112
ED045G: Chloride by Discrete Analyser (QCLot: 5336208)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	105	88.6	113
				<1	1000 mg/L	98.4	88.6	113
ED045G: Chloride by Discrete Analyser (QCLot: 5336211)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	99.9	88.6	113
				<1	1000 mg/L	101	88.6	113
ED093F: Dissolved Major Cations (QCLot: 5327986)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.7	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.1	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.2	84.6	108
ED093F: Dissolved Major Cations (QCLot: 5327987)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	86.5	117
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	100	88.4	110
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.3	91.4	113
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.5	84.6	108
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329745)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	99.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	109	71.0	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329745) - continued								
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	92.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	105	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	90.5	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.9	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329763)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	103	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	98.6	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	95.4	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	113	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.4	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	90.0	53.0	142
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329797)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	96.5	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	117	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	94.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	110	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	97.8	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	97.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329745)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	98.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	98.2	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	102	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	101	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	107	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	94.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.6	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	89.6	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	84.2	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329763)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	104	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	94.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	99.2	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329763) - continued								
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	111	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	100	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	99.8	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	99.4	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	98.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	96.2	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	108	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329797)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	103	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	104	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	105	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	97.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	97.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	93.8	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	95.2	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329745)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	100	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	82.3	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	73.1	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	105	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	99.2	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	94.8	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329763)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	108	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	88.0	68.0	141

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329763) - continued								
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	88.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	108	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	118	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	95.4	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329797)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	103	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	87.9	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	87.9	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	102	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	114	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	95.2	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	109	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329745)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	106	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	92.7	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	106	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	91.3	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329763)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	104	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	104	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	103	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	97.7	64.2	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329797)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	107	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	118	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	118	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	94.4	64.2	133

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231P: PFAS Sums (QCLot: 5329745)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5329763)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP231P: PFAS Sums (QCLot: 5329797)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336207)							
EP2313263-017	0967_MW155S_230925	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	108	70.4	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5336210)							
EP2313262-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	117	70.4	130
ED045G: Chloride by Discrete Analyser (QCLot: 5336208)							
EP2313263-017	0967_MW155S_230925	ED045G: Chloride	16887-00-6	1000 mg/L	78.8	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5336211)							
EP2313262-001	Anonymous	ED045G: Chloride	16887-00-6	1000 mg/L	99.9	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329763)							
EP2313263-012	0967_MW053_230925	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	# Not Determined	71.0	127

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329763) - continued							
EP2313263-012	0967_MW053_230925	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	# Not Determined	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	# Not Determined	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	95.8	53.0	129
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	104	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	115	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	94.6	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	107	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	92.9	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	101	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329763)							
EP2313263-012	0967_MW053_230925	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	104	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	# Not Determined	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	102	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	# Not Determined	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	98.1	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	91.8	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	106	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	104	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	102	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	112	71.0	132
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	102	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	104	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	102	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	105	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	104	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	97.6	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	108	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	101	72.0	134

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329797) - continued							
EP2313398-001	Anonymous	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	98.8	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	93.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329763)							
EP2313263-012	0967_MW053_230925	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	107	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	72.9	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	81.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	98.2	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	110	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	107	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	87.6	61.0	135
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	102	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	98.5	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	83.2	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	113	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	109	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	95.4	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	123	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329763)							
EP2313263-012	0967_MW053_230925	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	108	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	100	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	115	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	110	70.0	130
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329797)							
EP2313398-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	100	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	104	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	98.8	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	91.5	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313263**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Site	: Pearce GW - AH	Issue Date	: 06-Oct-2023
Sampler	: [redacted]	No. of samples received	: 17
Order number	: pfas-omp Pearce	No. of samples analysed	: 17

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313263--012	0967_MW053_230925	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313263--012	0967_MW053_230925	**Perfluoropentane sulfonic acid (PFPeS)**	2706-91-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313263--012	0967_MW053_230925	**Perfluorohexane sulfonic acid (PFHxS)**	355-46-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313263--012	0967_MW053_230925	**Perfluoroheptane sulfonic acid (PFHpS)**	375-92-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313263--012	0967_MW053_230925	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313263--012	0967_MW053_230925	**Perfluoropentanoic acid (PFPeA)**	2706-90-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313263--012	0967_MW053_230925	**Perfluorohexanoic acid (PFHxA)**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231B: Perfluoroalkyl Carboxylic Acids	EP2313263--012	0967_MW053_230925	**Perfluorooctanoic acid (PFOA)**	335-67-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC 2	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	48	4.17	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	2	48	4.17	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**----**	----	**----**	**02-Oct-2023**	09-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
0967_MW155S_230925	**25-Sep-2023**	**----**	----	**----**	**05-Oct-2023**	23-Oct-2023	✓
Clear Plastic Bottle - Natural (ED041G)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW055_230925	**25-Sep-2023**	**----**	----	**----**	**06-Oct-2023**	23-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
0967_MW155S_230925	**25-Sep-2023**	**----**	----	**----**	**05-Oct-2023**	23-Oct-2023	✓
Clear Plastic Bottle - Natural (ED045G)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW055_230925	**25-Sep-2023**	**----**	----	**----**	**06-Oct-2023**	23-Oct-2023	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**----**	----	**----**	**29-Sep-2023**	02-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
0967_MW109_230925, 0967_MW107_230925, 0967_MW110_230925, 0967_MW103_230925, 0967_MW104_230925, 0967_MW105_230925, 0967_MW134D_230925, 0967_MW134S_230925, 0967_MW132D_230925, 0967_MW132S_230925, 0967_MW052_230925, 0967_MW053_230925, 0967_MW015_230925, 0967_MW101_230925, 0967_MW102_230925, 0967_MW055_230925, 0967_MW155S_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	23-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	3	30	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	48	**4.17**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Alkalinity by Auto Titrator	ED037-P	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	3	48	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	48	**4.17**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

Perth
Work Order Reference
EP2313265

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: Defence Client: Stantec Project Manager: [redacted]
Phone:

ALS Compass COC Reference: 57771, # Samples: Sampler:
Phone:

57772, 57770,

Turnaround Requirements: (Standard) Urgent

Special Instructions:	ALS Use Only			
	Custody seal intact?	YES	NO	N/A
	Free ice / frozen ice bricks upon receipt?	YES	NO	N/A
	Random sample temperature on receipt?		°C	

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 26/9/22	Date / Time: 26/9 1300	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57772 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Sediments SEDIMENT	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_SD002		25/09/2023 07:36 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
002	0967_SD018		25/09/2023 08:11 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
003	0967_SD015		25/09/2023 08:53 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
004	0967_SD013		25/09/2023 09:03 AM	SOIL	ALS: 1 Non ALS: 0	No	X		
005	0967_SD007		25/09/2023 10:34 AM	SOIL	ALS: 1 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57772 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce SD - AH

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_SD002	HDPE Soil Jar	200 mL	00621222068296	Grey	No	
002	0967_SD018	HDPE Soil Jar	200 mL	00621222068417	Grey	No	
003	0967_SD015	HDPE Soil Jar	200 mL	00621222068280	Grey	No	
004	0967_SD013	HDPE Soil Jar	200 mL	00621122090676	Grey	No	
005	0967_SD007	HDPE Soil Jar	200 mL	00621222068395	Grey	No	

Total Bottle Count: ALS: 5, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313265**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57772	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce SD - AH		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 26-Sep-2023 13:00	Issue Date	: 28-Sep-2023
Client Requested Due Date	: 06-Oct-2023	Scheduled Reporting Date	: **06-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 17.4
Receipt Detail	:	No. of samples received / analysed	: 5 / 5

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EP231X (solids) PFAS - Full Suite (28 analytes)
EP2313265-001	25-Sep-2023 07:36	0967_SD002_230925	✓	✓
EP2313265-002	25-Sep-2023 08:11	0967_SD018_230925	✓	✓
EP2313265-003	25-Sep-2023 08:53	0967_SD015_230925	✓	✓
EP2313265-004	25-Sep-2023 09:03	0967_SD013_230925	✓	✓
EP2313265-005	25-Sep-2023 10:34	0967_SD007_230925	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) Email [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) Email [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) Email [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email [redacted]stantec.com
- Chain of Custody (CoC) (COC) Email [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) Email [redacted]stantec.com
- EDI Format - XTab (XTAB) Email [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313265**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023 13:00
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57772	Issue Date	: 06-Oct-2023 16:56
Sampler	: [redacted]		
Site	: Pearce SD - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X: The LOR of PFPeS has been raised on sample EP2313265-005 and PFOS Surrogate not determined due to sample matrix interference.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)			Sample ID	0967_SD002_230925	0967_SD018_230925	0967_SD015_230925	0967_SD013_230925	0967_SD007_230925
			Sampling date / time	25-Sep-2023 07:36	25-Sep-2023 08:11	25-Sep-2023 08:53	25-Sep-2023 09:03	25-Sep-2023 10:34
Compound	CAS Number	LOR	Unit	EP2313265-001	EP2313265-002	EP2313265-003	EP2313265-004	EP2313265-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	**2.1**	**19.9**	**18.0**	**17.2**	**51.9**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	**0.0002**	**0.0005**	**0.0285**
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	**0.0003**	**0.0008**	<0.0435
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	**0.0010**	**0.0003**	**0.0039**	**0.0108**	**0.321**
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	**0.0002**	**0.0011**	**0.0452**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	**0.0106**	**0.0058**	**0.0182**	**0.274**	**7.02**
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	**0.0002**	<0.0002	**0.0004**	**0.0078**	**0.204**
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	<0.001	**0.003**
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0003**	**0.0065**
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	**0.0002**	<0.0002	**0.0009**	**0.0018**	**0.0479**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0138**
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	**0.0002**	**0.0009**	**0.0548**
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0017**
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	**0.0002**	<0.0002	<0.0002	**0.0002**	**0.0024**
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	**0.0004**	<0.0002	<0.0002	<0.0002	**0.0042**
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	**0.0006**	<0.0002	<0.0002	<0.0002	**0.0254**
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	<0.0002	**0.0156**
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	**0.0077**
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	**0.0023**	**0.162**
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	<0.0005	**0.0018**

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Sample ID	0967_SD002_230925	0967_SD018_230925	0967_SD015_230925	0967_SD013_230925	0967_SD007_230925
				Sampling date / time	25-Sep-2023 07:36	25-Sep-2023 08:11	25-Sep-2023 08:53	25-Sep-2023 09:03	25-Sep-2023 10:34
Compound	CAS Number	LOR	Unit		EP2313265-001	EP2313265-002	EP2313265-003	EP2313265-004	EP2313265-005
					Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0008**
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	**0.0018**
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	**0.0063**
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg		**0.0005**	<0.0005	<0.0005	<0.0005	**0.0140**
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	**0.0017**
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg		**0.0137**	**0.0061**	**0.0243**	**0.300**	**7.99**
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg		**0.0116**	**0.0061**	**0.0221**	**0.285**	**7.34**
Sum of PFAS (WA DER List)	----	0.0002	mg/kg		**0.0123**	**0.0061**	**0.0234**	**0.288**	**7.52**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%		**95.5**	**93.0**	**93.0**	**104**	**Not Determined**
13C8-PFOA	----	0.0002	%		**94.0**	**95.0**	**92.5**	**100**	**84.0**

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	76	136
13C8-PFOA	----	78	131

QUALITY CONTROL REPORT

Work Order	: **EP2313265**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57772	Issue Date	: 06-Oct-2023
Sampler	: [redacted]		
Site	: Pearce SD - AH		
Quote number	: SY/139/19 B		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Chris Lemaitre	Laboratory Manager (Perth)	Perth Inorganics, Wangara, WA
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5339745)									
EP2313265-001	0967_SD002_230925	EA055: Moisture Content	----	0.1	%	2.1	2.2	0.0	0% - 20%
EP2313638-002	Anonymous	EA055: Moisture Content	----	0.1	%	2.2	2.2	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5329677)									
EP2313265-001	0967_SD002_230925	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0010	0.0008	26.3	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0106	0.0097	9.1	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
EP2313498-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329677)									
EP2313265-001	0967_SD002_230925	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0006	0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5329677) - continued									
EP2313265-001	0967_SD002_230925	EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP2313498-001	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5329677)									
EP2313265-001	0967_SD002_230925	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2313498-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5329677)									
EP2313265-001	0967_SD002_230925	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP2313498-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5329677)									
EP2313265-001	0967_SD002_230925	EP231X: Sum of PFAS	----	0.0002	mg/kg	0.0137	0.0116	16.6	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0116	0.0105	10.0	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0123	0.0105	15.8	0% - 20%
EP2313498-001	Anonymous	EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329677)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.0011 mg/kg	97.3	72.0	128
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	73.0	123
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00118 mg/kg	81.4	67.0	130
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00119 mg/kg	93.3	70.0	132
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00116 mg/kg	87.9	68.0	136
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.0012 mg/kg	95.4	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329677)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	90.3	71.0	135
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	69.0	132
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	70.0	132
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	71.0	131
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	69.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	72.0	129
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	69.0	133
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	64.0	136
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	69.0	135
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.8	66.0	139
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00125 mg/kg	96.4	69.0	133
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329677)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	88.0	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	112	59.6	143
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	83.2	62.8	140
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	93.8	61.5	139
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	100	61.9	139
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	63.0	144
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	87.6	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329677)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329677) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00117 mg/kg	88.9	62.0	145
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00118 mg/kg	93.2	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.0012 mg/kg	91.7	65.0	137
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.0012 mg/kg	86.2	54.8	124
EP231P: PFAS Sums (QCLot: 5329677)								
EP231X: Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5329677)							
EP2313265-002	0967_SD018_230925	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0011 mg/kg	101	72.0	128
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00117 mg/kg	108	73.0	123
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00118 mg/kg	84.5	67.0	130
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00119 mg/kg	100	70.0	132
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00116 mg/kg	# Not Determined	68.0	136
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0012 mg/kg	83.1	59.0	134
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5329677)							
EP2313265-002	0967_SD018_230925	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	93.0	71.0	135
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	88.3	69.0	132
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	99.9	70.0	132
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	92.8	71.0	131
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	104	69.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	93.9	72.0	129
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	91.6	69.0	133
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	99.6	64.0	136
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	101	69.0	135
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	102	66.0	139
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00125 mg/kg	87.5	69.0	133

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5329677)							
EP2313265-002	0967_SD018_230925	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	95.9	48.0	128
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	99.2	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	87.9	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	94.4	60.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	83.0	60.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	94.3	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	97.5	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5329677)							
EP2313265-002	0967_SD018_230925	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00117 mg/kg	89.7	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00118 mg/kg	82.5	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0012 mg/kg	98.3	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0012 mg/kg	61.2	60.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313265**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 26-Sep-2023
Site	: Pearce SD - AH	Issue Date	: 06-Oct-2023
Sampler	: [redacted]	No. of samples received	: 5
Order number	: pfas-omp Pearce	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313265--002	0967_SD018_230925	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
HDPE Soil Jar (EA055) 0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**----**	----	----	**05-Oct-2023**	09-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE Soil Jar (EP231X) 0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	08-Nov-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE Soil Jar (EP231X) 0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	08-Nov-2023	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE Soil Jar (EP231X) 0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	08-Nov-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE Soil Jar (EP231X)							
0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	08-Nov-2023	✓
EP231P: PFAS Sums							
HDPE Soil Jar (EP231X)							
0967_SD002_230925, 0967_SD018_230925, 0967_SD015_230925, 0967_SD013_230925, 0967_SD007_230925	**25-Sep-2023**	**29-Sep-2023**	23-Mar-2024	✓	**30-Sep-2023**	08-Nov-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
QuECheRS Extraction of Solids	* ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.

ALSCompass
SAMPLING *Intelligence*

ALS

Environmental Division
Perth
Work Order Reference
EP2313502

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manager:** [redacted]

Phone:

ALS Compass COC Reference: 57908 & 57989 **# Samples:**

Sampler:

Phone:

Turnaround Requirements: Standard Urgent

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 28-9-23	Date / Time: 28/9 1515	Date / Time:	Date / Time:

CHAIN OF CUSTODY

COC#: **57908** *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT - CG

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_POT086		27/09/2023 08:50 AM	WATER	ALS: 4 Non ALS: 0	No	X		Extra Lab QAQC PFAS

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313502**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57908	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT - CG		
Sampler	: [redacted]		

Dates

Date Samples Received	: 28-Sep-2023 15:15	Issue Date	: 29-Sep-2023
Client Requested Due Date	: 09-Oct-2023	Scheduled Reporting Date	: **09-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 16.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313502-001	27-Sep-2023 08:50	0967_POT086_230927	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313502**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023 15:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57908	Issue Date	: 04-Oct-2023 07:04
Sampler	: [redacted]		
Site	: Pearce POT - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT086_230927	----	----	----	----
				Sampling date / time	27-Sep-2023 08:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313502-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	----	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	----	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	----	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	----	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: POTABLE WATER (Matrix: WATER)				Sample ID	0967_POT086_230927	----	----	----	----
				Sampling date / time	27-Sep-2023 08:50	----	----	----	----
Compound	CAS Number	LOR	Unit		EP2313502-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	----	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	----	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	----	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	----	----	----	----
13C8-PFOA	----	0.02	%		**98.4**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **POTABLE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313502**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57908	Issue Date	: 04-Oct-2023
Sampler	: [redacted]		
Site	: Pearce POT - CG		
Quote number	: SY/139/19 B		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.03	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2313610-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.35	0.34	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.31	1.40	7.2	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5333006) - continued									
EP2313610-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.25	0.23	7.9	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2313610-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5333006) - continued									
EP2313503-009	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2313610-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.06	0.07	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.02	0.03	40.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.02	0.03	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.02	0.03	40.0	No Limit
EP2313610-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.18	2.24	2.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.66	1.74	4.7	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.10	2.18	3.7	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333006)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	91.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	85.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	95.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	90.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	76.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333006)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	88.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	94.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333006)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	91.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	94.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	90.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	89.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.1	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	110	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	81.7	64.2	133
EP231P: PFAS Sums (QCLot: 5333006)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	91.3	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	99.2	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	91.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	91.0	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	78.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	87.8	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	103	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	88.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	95.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	98.5	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	96.5	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	92.1	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.1	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	87.4	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.4	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	97.2	71.0	132

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.1	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	90.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	87.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	97.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	89.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	94.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	72.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313502**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023
Site	: Pearce POT - CG	Issue Date	: 04-Oct-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 1
Order number	: pfas-omp Pearce	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313550--001	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT086_230927	**27-Sep-2023**	**02-Oct-2023**	25-Mar-2024	✓	**02-Oct-2023**	25-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) 0967_POT086_230927	**27-Sep-2023**	**02-Oct-2023**	25-Mar-2024	✓	**02-Oct-2023**	25-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) 0967_POT086_230927	**27-Sep-2023**	**02-Oct-2023**	25-Mar-2024	✓	**02-Oct-2023**	25-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) 0967_POT086_230927	**27-Sep-2023**	**02-Oct-2023**	25-Mar-2024	✓	**02-Oct-2023**	25-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) 0967_POT086_230927	**27-Sep-2023**	**02-Oct-2023**	25-Mar-2024	✓	**02-Oct-2023**	25-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

ALSCompass
SAMPLING Intelligence

ALS

Environmental Division
Perth
Work Order Reference
EP2313504

Telephone : +61-8-9406 1301

Custody Document for Submissions via ALS Compass App

Project: WA_0967_PFASOMP_23 **Client:** Stantec **Project Manage** [redacted]
Phone:

ALS Compass COC Reference: 57908 & 57989 **# Samples:** **Sampler:**
Phone:

Turnaround Requirements: Standard Urgent

Special Instructions:

Custody:

Relinquished by:	Received by:	Relinquished by:	Received by:
[redacted]			
Date / Time: 28-9-23	Date / Time: 29/9 1515	Date / Time:	Date / Time:

CHAIN OF CUSTODY

ALS COC#: 57989 ALS Laboratory: EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT - QC

ORDER NO: pfas-omp Pearce

PROJECT MANAGER [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO [redacted]

EMAIL INVOICES TO [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info: [redacted]

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	

Other comments:

SAMPLE DETAILS							ANALYSIS REQUIRED		
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	PFAS Waters WATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	0967_QC301		28/09/2023 12:58 PM	WATER	ALS: 2 Non ALS: 0	No	X		
002	0967_QC401		28/09/2023 12:59 PM	WATER	ALS: 2 Non ALS: 0	No	X		

CHAIN OF CUSTODY

COC#: 57989 *ALS Laboratory:* EP Perth Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME:	DATE TIME:	DATE TIME:

CLIENT: MWHAUS - STANTEC AUSTRALIA PTY LTD

PROJECT: WA_0967_PFASOMP_23

SITE: Pearce POT - QC

ORDER NO: pfas-omp Pearce

PROJECT MANAGER: [redacted]

PRIMARY SAMPLER: [redacted]

EMAIL REPORTS TO: [redacted]

EMAIL INVOICES TO: [redacted]

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

QUOTE NO: SY/139/19 B / ES2022MWHAUS0002

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comments:

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	0967_QC301	HDPE (no PTFE)	20 mL	00350822018907	Grey	No	
001	0967_QC301	HDPE (no PTFE)	20 mL	00350822019100	Grey	No	
002	0967_QC401	HDPE (no PTFE)	20 mL	00350822019114	Grey	No	
002	0967_QC401	HDPE (no PTFE)	20 mL	00350822052049	Grey	No	

Total Bottle Count: ALS: 4, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EP2313504**

Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
E-mail	: [redacted]stantec.com	E-mail	: ALSEnviro.Perth@alsglobal.com
Telephone	: ----	Telephone	: +61-8-9406 1301
Facsimile	: ----	Facsimile	: +61-8-9406 1399
Project	: WA_0967_PFASOMP_23	Page	: 1 of 2
Order number	: pfas-omp Pearce	Quote number	: ES2022MWHAUS0002 (SY/139/19 B)
C-O-C number	: 57989	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Pearce POT - QC		
Sampler	: [redacted] [redacted]		

Dates

Date Samples Received	: 28-Sep-2023 15:15	Issue Date	: 29-Sep-2023
Client Requested Due Date	: 09-Oct-2023	Scheduled Reporting Date	: **09-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 16.9 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (Samples.Perth@alsglobal.com)
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months) from receipt of samples.
- **pH analysis should be conducted within 6 hours of sampling.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP231X PFAS - Full Suite (28 analytes)
EP2313504-001	28-Sep-2023 12:58	0967_QC301_230928	✓
EP2313504-002	28-Sep-2023 12:59	0967_QC401_230928	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

[redacted]
- A4 - AU Tax Invoice (INV) — Email — [redacted]cardno.com.au

[redacted]
- EDI Format - ESDAT (ESDAT) — Email — [redacted]esdat.com.au

[redacted]
- *AU Certificate of Analysis - NATA (COA) — Email — [redacted]stantec.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) — Email — [redacted]stantec.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) — Email — [redacted]stantec.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) — Email — [redacted]stantec.com
- Chain of Custody (CoC) (COC) — Email — [redacted]stantec.com
- EDI Format - ESDAT (ESDAT) — Email — [redacted]stantec.com
- EDI Format - XTab (XTAB) — Email — [redacted]stantec.com

CERTIFICATE OF ANALYSIS

Work Order	: **EP2313504**	Page	: 1 of 5
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023 15:15
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57989	Issue Date	: 04-Oct-2023 07:05
Sampler	: [redacted]		
Site	: Pearce POT - QC		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230928	0967_QC401_230928	----	----	----
				Sampling date / time	28-Sep-2023 12:58	28-Sep-2023 12:59	----	----	----
Compound	CAS Number	LOR	Unit		EP2313504-001	EP2313504-002	--------	--------	--------
					Result	Result	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L		<0.02	<0.02	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	<0.01	----	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L		<0.02	<0.02	----	----	----
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L		<0.05	<0.05	----	----	----
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L		<0.02	<0.02	----	----	----
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L		<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: RINSATE (Matrix: WATER)				Sample ID	0967_QC301_230928	0967_QC401_230928	----	----	----
				Sampling date / time	28-Sep-2023 12:58	28-Sep-2023 12:59	----	----	----
Compound	CAS Number	LOR	Unit		EP2313504-001	EP2313504-002	--------	--------	--------
					Result	Result	----	----	----
EP231C: Perfluoroalkyl Sulfonamides - Continued									
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L		<0.05	<0.05	----	----	----
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L		<0.05	<0.05	----	----	----
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L		<0.02	<0.02	----	----	----
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L		<0.02	<0.02	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFAS	----	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	<0.01	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	**105**	----	----	----
13C8-PFOA	----	0.02	%		**96.2**	**100**	----	----	----

Surrogate Control Limits

Sub-Matrix: **RINSATE**		Recovery Limits (%)	
Compound	*CAS Number*	***Low***	***High***
EP231S: PFAS Surrogate			
13C4-PFOS	----	65	140
13C8-PFOA	----	71	133

QUALITY CONTROL REPORT

Work Order	: **EP2313504**	Page	: 1 of 7
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: GROUND FLOOR 226 ADELAIDE TERRACE PERTH 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023
Order number	: pfas-omp Pearce	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: 57989	Issue Date	: 04-Oct-2023
Sampler	: [redacted] [redacted]		
Site	: Pearce POT - QC		
Quote number	: SY/139/19 B		
No. of samples received	: 2		
No. of samples analysed	: 2		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.03	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP2313610-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.35	0.34	0.0	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	1.31	1.40	7.2	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.04	0.03	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5333006) - continued									
EP2313610-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.05	0.05	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.03	0.04	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.25	0.23	7.9	0% - 50%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2313610-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5333006) - continued									
EP2313503-009	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP2313610-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.06	0.07	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5333006)									
EP2313503-009	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	0.02	0.03	40.0	No Limit
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	0.02	0.03	40.0	No Limit
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	0.02	0.03	40.0	No Limit
EP2313610-001	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	2.18	2.24	2.7	0% - 20%
		EP231X: Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	1.66	1.74	4.7	0% - 20%
		EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	2.10	2.18	3.7	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333006)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.2218 µg/L	91.3	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.2352 µg/L	106	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.2373 µg/L	85.1	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.238 µg/L	95.2	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.232 µg/L	90.9	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.241 µg/L	76.3	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333006)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	88.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	91.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	87.4	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	93.8	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	88.8	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	91.4	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	82.6	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	90.8	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	94.0	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	105	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.25 µg/L	94.8	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333006)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	91.4	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	103	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	94.6	60.5	138
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	101	68.3	134
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	100	62.2	138
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	100	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	90.6	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006) - continued								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.2343 µg/L	89.2	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.2378 µg/L	96.1	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.24 µg/L	110	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.241 µg/L	81.7	64.2	133
EP231P: PFAS Sums (QCLot: 5333006)								
EP231X: Sum of PFAS	----	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFHxS and PFOS	355-46-4/17 63-23-1	0.01	µg/L	<0.01	----	----	----	----
EP231X: Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.2218 µg/L	91.3	72.0	129
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.232 µg/L	99.2	71.0	127
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.2352 µg/L	91.5	68.0	129
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.238 µg/L	91.0	69.0	134
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.232 µg/L	# Not Determined	65.0	140
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.241 µg/L	78.9	53.0	129
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	87.8	73.0	142
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	103	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	88.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	95.7	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	98.5	71.0	133
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.25 µg/L	96.5	69.0	130
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.25 µg/L	92.1	71.0	134
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.25 µg/L	99.1	69.0	133
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.25 µg/L	87.4	72.0	134
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.25 µg/L	97.4	65.0	144
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.25 µg/L	97.2	71.0	132

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.25 µg/L	87.1	59.0	135
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.625 µg/L	96.3	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.625 µg/L	104	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.625 µg/L	102	70.0	130
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.625 µg/L	90.9	70.0	130
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.25 µg/L	87.6	65.0	136
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.25 µg/L	97.2	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5333006)							
EP2313550-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.234 µg/L	88.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.2378 µg/L	89.1	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.24 µg/L	94.1	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.2415 µg/L	72.3	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2313504**	Page	: 1 of 4
Client	: **STANTEC AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: WA_0967_PFASOMP_23	Date Samples Received	: 28-Sep-2023
Site	: Pearce POT - QC	Issue Date	: 04-Oct-2023
Sampler	: [redacted] [redacted]	No. of samples received	: 2
Order number	: pfas-omp Pearce	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231A: Perfluoroalkyl Sulfonic Acids	EP2313550--001	Anonymous	**Perfluorooctane sulfonic acid (PFOS)**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230928,	0967_QC401_230928	**28-Sep-2023**	**02-Oct-2023**	26-Mar-2024	✓	**02-Oct-2023**	26-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230928,	0967_QC401_230928	**28-Sep-2023**	**02-Oct-2023**	26-Mar-2024	✓	**02-Oct-2023**	26-Mar-2024	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE (no PTFE) (EP231X)								
0967_QC301_230928,	0967_QC401_230928	**28-Sep-2023**	**02-Oct-2023**	26-Mar-2024	✓	**02-Oct-2023**	26-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
0967_QC301_230928,	0967_QC401_230928	**28-Sep-2023**	**02-Oct-2023**	26-Mar-2024	✓	**02-Oct-2023**	26-Mar-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
0967_QC301_230928,	0967_QC401_230928	**28-Sep-2023**	**02-Oct-2023**	26-Mar-2024	✓	**02-Oct-2023**	26-Mar-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
Solid Phase Extraction (SPE) for PFAS in water	* ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

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CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Company Name : Stantec Australia

[redacted]

Office Address : 226 Adelaide Tce, Perth, WA 6000

Purchase Order : 304700525

COC Number : 304700525 -01

PROJECT Number : WA_0967_PFASOMP_23

Eurofins | mgt quote ID :

PROJECT Name : WA_0967_PFASOMP_23

Data output format: PDF; ESDAT

[redacted]

Eurofins | mgt DI water batch number:

	Sample ID	Date	Matrix	PFAS (28 analytes)
1	0967_QC201_230911	11/09/2023	Water	X
2	0967_QC202_230911	11/09/2023	Water	X
3	0967_QC203_230911	11/09/2023	Water	X
4	0967_QC204_230911	11/09/2023	Water	X
5	0967_QC205_230911	11/09/2023	Water	X
6	0967_QC206_230911	11/09/2023	Water	X
7	0967_QC207_230913	13/09/2023	Water	X
8	0967_QC208_230913	13/09/2023	Water	X
9	0967_QC209_230913	13/09/2023	Water	X
10	0967_QC210_230913	13/09/2023	Soil	X
11	0967_QC211_230913	13/09/2023	Water	X
12	0967_QC212_230914	14/09/2023	Water	X
13	0967_QC213_230914	14/09/2023	Water	X
14	0967_QC214_230914	14/09/2023	Soil	X
15	0967_QC215_230914	14/09/2023	Water	X
16	0967_QC216_230914	14/09/2023	Soil	X
17	0967_QC217_230915	15/09/2023	Water	X

Analytes

Some common holding times (with correct preservation).
For further information contact the lab

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours
Ferrous iron	7 days	ASLP, TCLP	7 days

Containers:

1LP	250P	125P	1LA	40mL vial	125mL A	Jar	

Sample comments:

Laboratory Staff

Relinquished By: Stantec

Date & Time : 15/09/23

Signature:

Received By: Hayley

Date & Time : 15/9/23 14:00

Signature:

Turn around time

1 DAY ☐ 2 DAY ☐ 3 DAY ☐

STANDARD ☑ Other:

Method Of Shipment

☑ Courier
☐ Hand Delivered
☐ Postal

Courier Consignment # :

Temperature on arrival: 5.7

Report number:

#1026632

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Project Name: WA_0967_PFASOMP_23
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525
Report #: 1026632
Phone: 0458 839 200
Fax:

Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	0967_QC202_230911	Sep 11, 2023		Water	L23-Se0036567			X
2	0967_QC203_230911	Sep 11, 2023		Water	L23-Se0036568			X
3	0967_QC204_230911	Sep 11, 2023		Water	L23-Se0036569			X
4	0967_QC205_230911	Sep 11, 2023		Water	L23-Se0036570			X
5	0967_QC206_230911	Sep 11, 2023		Water	L23-Se0036571			X
6	0967_QC207_230911	Sep 13, 2023		Water	L23-Se0036572			X
7	0967_QC208_230911	Sep 13, 2023		Water	L23-Se0036573			X

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Project Name: WA_0967_PFASOMP_23
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525
Report #: 1026632
Phone: 0458 839 200
Fax:

Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
8	0967_QC209_230911	Sep 13, 2023		Water	L23-Se0036574			X
9	0967_QC210_230911	Sep 13, 2023		Soil	L23-Se0036575		X	X
10	0967_QC211_230911	Sep 13, 2023		Water	L23-Se0036576			X
11	0967_QC212_230911	Sep 14, 2023		Water	L23-Se0036577	X		
12	0967_QC213_230911	Sep 14, 2023		Water	L23-Se0036578			X
13	0967_QC214_230911	Sep 14, 2023		Soil	L23-Se0036579		X	X
14	0967_QC215_230911	Sep 14, 2023		Water	L23-Se0036580			X
15	0967_QC217_230911	Sep 14, 2023		Water	L23-Se0036581			X
16	0967_QC201_230911	Sep 11, 2023		Water	L23-Se0036582			X

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Project ID: WA_0967_PFASOMP_23

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Phone: 0458 839 200
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Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail	CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370	X		
Melbourne Laboratory - NATA # 1261 Site # 1254		X	X
Test Counts	1	2	15

Stantec Australia Pty Limited
6F 226,Adelaide Terrace
Perth
WA 6000

NATA Accredited
Accreditation Number 2377
Site Number 2370

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **ALL INVOICES**

Report **1026632-S-V2**
Project name WA_0967_PFASOMP_23
Project ID WA_0967_PFASOMP_23
Received Date Sep 15, 2023

Client Sample ID			**0967_QC210_230913**	**0967_QC214_230914**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**L23-Se0036575**	**L23-Se0036579**
Date Sampled			**Sep 13, 2023**	**Sep 14, 2023**
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	23	19
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA)[N11]	5	ug/kg	< 5	< 5
Perfluoropentanoic acid (PFPeA)[N11]	5	ug/kg	< 5	< 5
Perfluorohexanoic acid (PFHxA)[N11]	5	ug/kg	< 5	< 5
Perfluoroheptanoic acid (PFHpA)[N11]	5	ug/kg	< 5	< 5
Perfluorooctanoic acid (PFOA)[N11]	5	ug/kg	< 5	< 5
Perfluorononanoic acid (PFNA)[N11]	5	ug/kg	< 5	< 5
Perfluorodecanoic acid (PFDA)[N11]	5	ug/kg	< 5	< 5
Perfluoroundecanoic acid (PFUnDA)[N11]	5	ug/kg	< 5	< 5
Perfluorododecanoic acid (PFDoDA)[N11]	5	ug/kg	< 5	< 5
Perfluorotridecanoic acid (PFTrDA)[N15]	5	ug/kg	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA)[N11]	5	ug/kg	< 5	< 5
13C4-PFBA (surr.)	1	%	77	62
13C5-PFPeA (surr.)	1	%	81	60
13C5-PFHxA (surr.)	1	%	88	77
13C4-PFHpA (surr.)	1	%	81	68
13C8-PFOA (surr.)	1	%	76	64
13C5-PFNA (surr.)	1	%	77	68
13C6-PFDA (surr.)	1	%	73	71
13C2-PFUnDA (surr.)	1	%	55	53
13C2-PFDoDA (surr.)	1	%	75	72
13C2-PFTeDA (surr.)	1	%	78	69
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA)[N11]	5	ug/kg	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	5	ug/kg	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	5	ug/kg	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	5	ug/kg	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	5	ug/kg	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	10	ug/kg	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	10	ug/kg	< 10	< 10

Client Sample ID			0967_QC210_230913	0967_QC214_230914
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**L23-Se0036575**	**L23-Se0036579**
Date Sampled			**Sep 13, 2023**	**Sep 14, 2023**
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonamido substances				
13C8-FOSA (surr.)	1	%	85	80
D3-N-MeFOSA (surr.)	1	%	81	76
D5-N-EtFOSA (surr.)	1	%	77	65
D7-N-MeFOSE (surr.)	1	%	82	67
D9-N-EtFOSE (surr.)	1	%	71	70
D5-N-EtFOSAA (surr.)	1	%	127	118
D3-N-MeFOSAA (surr.)	1	%	117	105
Perfluoroalkyl sulfonic acids (PFSAs)				
Perfluorobutanesulfonic acid (PFBS)[N11]	5	ug/kg	< 5	< 5
Perfluorononanesulfonic acid (PFNS)[N15]	5	ug/kg	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS)[N15]	5	ug/kg	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS)[N15]	5	ug/kg	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS)[N11]	5	ug/kg	9.8	< 5
Perfluoroheptanesulfonic acid (PFHpS)[N15]	5	ug/kg	< 5	< 5
Perfluorooctanesulfonic acid (PFOS)[N11]	5	ug/kg	[N09]66	< 5
Perfluorodecanesulfonic acid (PFDS)[N15]	5	ug/kg	< 5	< 5
13C3-PFBS (surr.)	1	%	85	72
18O2-PFHxS (surr.)	1	%	83	68
13C8-PFOS (surr.)	1	%	59	68
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	5	ug/kg	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	10	ug/kg	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	5	ug/kg	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	5	ug/kg	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	76	72
13C2-6:2 FTSA (surr.)	1	%	81	67
13C2-8:2 FTSA (surr.)	1	%	122	98
13C2-10:2 FTSA (surr.)	1	%	108	108
PFASs Summations				
Sum (PFHxS + PFOS)*	5	ug/kg	75.8	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	66	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	75.8	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	75.8	< 10
Sum of PFASs (n=30)*	50	ug/kg	75.8	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
% Moisture	Melbourne	Sep 15, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Sep 15, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Address: 6F 226,Adelaide Terrace
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WA 6000

Project Name: WA_0967_PFASOMP_23
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525
Report #: 1026632
Phone: 0458 839 200
Fax:

Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	0967_QC201_230911	Sep 11, 2023		Water	L23-Se0036567			X
2	0967_QC203_230911	Sep 11, 2023		Water	L23-Se0036568			X
3	0967_QC204_230911	Sep 11, 2023		Water	L23-Se0036569			X
4	0967_QC205_230911	Sep 11, 2023		Water	L23-Se0036570			X
5	0967_QC206_230911	Sep 11, 2023		Water	L23-Se0036571			X
6	0967_QC207_230913	Sep 13, 2023		Water	L23-Se0036572			X
7	0967_QC208_230913	Sep 13, 2023		Water	L23-Se0036573			X

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Order No.: 304700525
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Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
8	0967_QC209_230913	Sep 13, 2023		Water	L23-Se0036574			X
9	0967_QC210_230913	Sep 13, 2023		Soil	L23-Se0036575		X	X
10	0967_QC211_230913	Sep 13, 2023		Water	L23-Se0036576			X
11	0967_QC212_230914	Sep 14, 2023		Water	L23-Se0036577	X		
12	0967_QC213_230914	Sep 14, 2023		Water	L23-Se0036578			X
13	0967_QC214_230914	Sep 14, 2023		Soil	L23-Se0036579		X	X
14	0967_QC215_230914	Sep 14, 2023		Water	L23-Se0036580			X
15	0967_QC217_230915	Sep 15, 2023		Water	L23-Se0036581			X
16	0967_QC202_230911	Sep 11, 2023		Water	L23-Se0036582			X

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Company Name:	Stantec Australia Pty Ltd (WA)	**Order No.:**	304700525	**Received:**	Sep 15, 2023 2:00 PM
Address:	6F 226,Adelaide Terrace Perth WA 6000	**Report #:**	1026632	**Due:**	Sep 22, 2023
		Phone:	0458 839 200	**Priority:**	5 Day
		Fax:		**Contact Name:**	ALL INVOICES
Project Name:	WA_0967_PFASOMP_23				
Project ID:	WA_0967_PFASOMP_23				

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail	CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370	X		
Melbourne Laboratory - NATA # 1261 Site # 1254		X	X
Test Counts	1	2	15

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	97			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	96			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	92			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	102			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	105			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	116			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	103			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	105			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	109			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	102			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	105			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	80			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	106			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	101			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	95			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	95			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	111			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	96			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	102			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	101			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	138			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	135			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	92			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	97			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	91			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	L23-Se0036579	CP	%	100			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L23-Se0036579	CP	%	100			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L23-Se0036579	CP	%	93			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L23-Se0036579	CP	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	L23-Se0036579	CP	%	113			50-150	Pass	
Perfluorononanoic acid (PFNA)	L23-Se0036579	CP	%	114			50-150	Pass	
Perfluorodecanoic acid (PFDA)	L23-Se0036579	CP	%	102			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	L23-Se0036579	CP	%	120			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	L23-Se0036579	CP	%	109			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L23-Se0036579	CP	%	111			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L23-Se0036579	CP	%	113			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	L23-Se0036579	CP	%	95			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L23-Se0036579	CP	%	109			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L23-Se0036579	CP	%	67			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L23-Se0036579	CP	%	87			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L23-Se0036579	CP	%	100			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L23-Se0036579	CP	%	100			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L23-Se0036579	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	L23-Se0036579	CP	%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	L23-Se0036579	CP	%	107			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	L23-Se0036579	CP	%	74			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L23-Se0036579	CP	%	92			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L23-Se0036579	CP	%	92			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L23-Se0036579	CP	%	131			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	L23-Se0036579	CP	%	93			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L23-Se0036579	CP	%	140			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L23-Se0036579	CP	%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L23-Se0036579	CP	%	91			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L23-Se0036579	CP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L23-Se0036579	CP	%	92			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-Se0039335	NCP	%	7.1	7.6	7.4	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	M23-Se0041606	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	M23-Se0041606	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	M23-Se0041606	NCP	ug/kg	140	180	28	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	M23-Se0041606	NCP	ug/kg	42	43	2.3	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	M23-Se0041606	NCP	ug/kg	170	190	13	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	M23-Se0041606	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	M23-Se0041606	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Comments

V2: Matched sample IDs with the COC for all samples. Date on sample ID's were incorrectly transcribed.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Elden Garrett	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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NATA Accredited
Accreditation Number 2377
Site Number 2370

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: **ALL INVOICES**

Report **1026632-W-V2**
Project name WA_0967_PFASOMP_23
Project ID WA_0967_PFASOMP_23
Received Date Sep 15, 2023

Client Sample ID			**0967_QC201_230911**	**0967_QC203_230911**	**0967_QC204_230911**	**0967_QC205_230911**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Se0036567**	**L23-Se0036568**	**L23-Se0036569**	**L23-Se0036570**
Date Sampled			**Sep 11, 2023**	**Sep 11, 2023**	**Sep 11, 2023**	**Sep 11, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.02	0.02	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.02	0.03	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.01	[N09]0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	68	66	114	112
13C5-PFPeA (surr.)	1	%	95	98	97	108
13C5-PFHxA (surr.)	1	%	112	116	102	121
13C4-PFHpA (surr.)	1	%	106	111	97	99
13C8-PFOA (surr.)	1	%	112	122	128	113
13C5-PFNA (surr.)	1	%	93	99	92	95
13C6-PFDA (surr.)	1	%	73	67	74	78
13C2-PFUnDA (surr.)	1	%	48	34	48	58
13C2-PFDoDA (surr.)	1	%	33	23	41	50
13C2-PFTeDA (surr.)	1	%	21	13	43	44
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	71	75	52	83
D3-N-MeFOSA (surr.)	1	%	13	14	13	17

Client Sample ID			0967_QC201_230911	0967_QC203_230911	0967_QC204_230911	0967_QC205_230911
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Se0036567**	**L23-Se0036568**	**L23-Se0036569**	**L23-Se0036570**
Date Sampled			**Sep 11, 2023**	**Sep 11, 2023**	**Sep 11, 2023**	**Sep 11, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSA (surr.)	1	%	14	11	18	15
D7-N-MeFOSE (surr.)	1	%	13	11	26	28
D9-N-EtFOSE (surr.)	1	%	11	14	22	22
D5-N-EtFOSAA (surr.)	1	%	50	38	31	56
D3-N-MeFOSAA (surr.)	1	%	59	46	39	65
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01	[N09]0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01	[N09]0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.08	[N09]0.16	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01	[N09]0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]0.47	[N09]0.61	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	105	111	106	113
18O2-PFHxS (surr.)	1	%	105	105	112	106
13C8-PFOS (surr.)	1	%	83	82	91	89
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	104	98	65	69
13C2-6:2 FTSA (surr.)	1	%	90	91	52	65
13C2-8:2 FTSA (surr.)	1	%	61	74	86	83
13C2-10:2 FTSA (surr.)	1	%	33	17	35	45
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	0.55	0.77	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.48	0.62	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.56	0.78	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	0.6	0.84	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	0.6	0.86	< 0.1	< 0.1

Client Sample ID			0967_QC206_230911	0967_QC207_230913	0967_QC208_230913	0967_QC209_230913
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Se0036571**	**L23-Se0036572**	**L23-Se0036573**	**L23-Se0036574**
Date Sampled			**Sep 11, 2023**	**Sep 13, 2023**	**Sep 13, 2023**	**Sep 13, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.04	0.01	0.04	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.01	< 0.01	[N09]0.01	< 0.01

Client Sample ID			0967_QC206_230911	0967_QC207_230913	0967_QC208_230913	0967_QC209_230913
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins Sample No.			**L23-Se0036571**	**L23-Se0036572**	**L23-Se0036573**	**L23-Se0036574**
Date Sampled			**Sep 11, 2023**	**Sep 13, 2023**	**Sep 13, 2023**	**Sep 13, 2023**
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	72	107	118	104
13C5-PFPeA (surr.)	1	%	108	92	107	98
13C5-PFHxA (surr.)	1	%	120	98	119	105
13C4-PFHpA (surr.)	1	%	113	95	105	98
13C8-PFOA (surr.)	1	%	122	116	127	124
13C5-PFNA (surr.)	1	%	102	89	102	93
13C6-PFDA (surr.)	1	%	83	85	95	86
13C2-PFUnDA (surr.)	1	%	57	78	79	76
13C2-PFDoDA (surr.)	1	%	42	86	81	80
13C2-PFTeDA (surr.)	1	%	32	65	67	66
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	76	76	86	89
D3-N-MeFOSA (surr.)	1	%	12	17	12	25
D5-N-EtFOSA (surr.)	1	%	19	17	20	27
D7-N-MeFOSE (surr.)	1	%	19	44	49	74
D9-N-EtFOSE (surr.)	1	%	14	43	39	75
D5-N-EtFOSAA (surr.)	1	%	54	73	82	75
D3-N-MeFOSAA (surr.)	1	%	65	78	84	79
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	[N09]0.02	< 0.01	[N09]0.04	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01	< 0.01	0.02	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]0.02	< 0.01	[N09]0.04	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.28	[N09]0.05	[N09]0.28	[N09]0.06
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.02	< 0.01	[N09]0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]1.2	[N09]0.15	[N09]0.21	0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	113	104	117	106
18O2-PFHxS (surr.)	1	%	111	107	112	110
13C8-PFOS (surr.)	1	%	82	95	103	97

Client Sample ID			0967_QC206_230911	0967_QC207_230913	0967_QC208_230913	0967_QC209_230913
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Se0036571	L23-Se0036572	L23-Se0036573	L23-Se0036574
Date Sampled			Sep 11, 2023	Sep 13, 2023	Sep 13, 2023	Sep 13, 2023
Test/Reference	LOR	Unit				
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	115	51	92	61
13C2-6:2 FTSA (surr.)	1	%	100	50	68	55
13C2-8:2 FTSA (surr.)	1	%	72	111	111	112
13C2-10:2 FTSA (surr.)	1	%	39	64	60	56
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	1.48	0.2	0.49	0.07
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	1.21	0.15	0.22	0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	1.49	0.2	0.5	0.07
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	1.55	0.21	0.58	0.07
Sum of PFASs (n=30)*	0.1	ug/L	1.59	0.21	0.65	< 0.1

Client Sample ID			0967_QC211_230913	0967_QC213_230914	0967_QC215_230914	0967_QC217_230915
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Se0036576	L23-Se0036578	L23-Se0036580	L23-Se0036581
Date Sampled			Sep 13, 2023	Sep 14, 2023	Sep 14, 2023	Sep 15, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.09	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	[N09]0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.02	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	106	80	86	86
13C5-PFPeA (surr.)	1	%	102	109	97	106
13C5-PFHxA (surr.)	1	%	103	117	116	113
13C4-PFHpA (surr.)	1	%	95	105	112	105
13C8-PFOA (surr.)	1	%	118	126	124	127
13C5-PFNA (surr.)	1	%	91	102	106	96
13C6-PFDA (surr.)	1	%	74	87	87	78
13C2-PFUnDA (surr.)	1	%	47	74	67	48
13C2-PFDoDA (surr.)	1	%	35	69	55	36
13C2-PFTeDA (surr.)	1	%	31	63	39	23

Client Sample ID			0967_QC211_230913	0967_QC213_230914	0967_QC215_230914	0967_QC217_230915
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			L23-Se0036576	L23-Se0036578	L23-Se0036580	L23-Se0036581
Date Sampled			Sep 13, 2023	Sep 14, 2023	Sep 14, 2023	Sep 15, 2023
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	84	88	93	83
D3-N-MeFOSA (surr.)	1	%	21	16	13	16
D5-N-EtFOSA (surr.)	1	%	19	12	17	19
D7-N-MeFOSE (surr.)	1	%	40	38	35	34
D9-N-EtFOSE (surr.)	1	%	32	32	30	26
D5-N-EtFOSAA (surr.)	1	%	47	68	60	48
D3-N-MeFOSAA (surr.)	1	%	52	76	74	59
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	[N09]0.06	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	[N09]0.08	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.90	< 0.01	< 0.01	[N09]0.02
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	[N09]0.02	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]0.06	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	107	116	108	111
18O2-PFHxS (surr.)	1	%	99	112	108	111
13C8-PFOS (surr.)	1	%	85	98	99	89
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	59	96	119	89
13C2-6:2 FTSA (surr.)	1	%	54	74	105	65
13C2-8:2 FTSA (surr.)	1	%	98	103	96	104
13C2-10:2 FTSA (surr.)	1	%	30	64	51	35
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	0.96	< 0.01	< 0.01	0.02
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.08	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.98	< 0.01	< 0.01	0.02
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	1.16	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	1.27	< 0.1	< 0.1	< 0.1

Client Sample ID			0967_QC202_230911
Sample Matrix			**Water**
Eurofins Sample No.			**L23-Se0036582**
Date Sampled			**Sep 11, 2023**
Test/Reference	LOR	Unit	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA)[N11]	0.05	ug/L	< 0.05
Perfluoropentanoic acid (PFPeA)[N11]	0.01	ug/L	0.01
Perfluorohexanoic acid (PFHxA)[N11]	0.01	ug/L	0.02
Perfluoroheptanoic acid (PFHpA)[N11]	0.01	ug/L	< 0.01
Perfluorooctanoic acid (PFOA)[N11]	0.01	ug/L	[N09]0.01
Perfluorononanoic acid (PFNA)[N11]	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA)[N11]	0.01	ug/L	< 0.01
Perfluoroundecanoic acid (PFUnDA)[N11]	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA)[N11]	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTrDA)[N15]	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA)[N11]	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	68
13C5-PFPeA (surr.)	1	%	98
13C5-PFHxA (surr.)	1	%	113
13C4-PFHpA (surr.)	1	%	108
13C8-PFOA (surr.)	1	%	119
13C5-PFNA (surr.)	1	%	102
13C6-PFDA (surr.)	1	%	72
13C2-PFUnDA (surr.)	1	%	37
13C2-PFDoDA (surr.)	1	%	22
13C2-PFTeDA (surr.)	1	%	13
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA)[N11]	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)[N11]	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)[N11]	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)[N11]	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)[N11]	0.05	ug/L	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)[N11]	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)[N11]	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	83
D3-N-MeFOSA (surr.)	1	%	13
D5-N-EtFOSA (surr.)	1	%	15
D7-N-MeFOSE (surr.)	1	%	13
D9-N-EtFOSE (surr.)	1	%	10
D5-N-EtFOSAA (surr.)	1	%	39
D3-N-MeFOSAA (surr.)	1	%	48
Perfluoroalkyl sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid (PFBS)[N11]	0.01	ug/L	< 0.01
Perfluorononanesulfonic acid (PFNS)[N15]	0.01	ug/L	< 0.01
Perfluoropropanesulfonic acid (PFPrS)[N15]	0.01	ug/L	< 0.01
Perfluoropentanesulfonic acid (PFPeS)[N15]	0.01	ug/L	< 0.01
Perfluorohexanesulfonic acid (PFHxS)[N11]	0.01	ug/L	[N09]0.09
Perfluoroheptanesulfonic acid (PFHpS)[N15]	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS)[N11]	0.01	ug/L	[N09]0.56
Perfluorodecanesulfonic acid (PFDS)[N15]	0.01	ug/L	< 0.01

Client Sample ID			0967_QC202_230911
Sample Matrix			**Water**
Eurofins Sample No.			**L23-Se0036582**
Date Sampled			**Sep 11, 2023**
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonic acids (PFSAs)			
13C3-PFBS (surr.)	1	%	104
18O2-PFHxS (surr.)	1	%	104
13C8-PFOS (surr.)	1	%	84
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)[N11]	0.05	ug/L	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)[N11]	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)[N11]	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	102
13C2-6:2 FTSA (surr.)	1	%	98
13C2-8:2 FTSA (surr.)	1	%	67
13C2-10:2 FTSA (surr.)	1	%	19
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	0.65
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.57
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.66
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	0.69
Sum of PFASs (n=30)*	0.1	ug/L	0.69

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFSAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Melbourne	Sep 20, 2023	28 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
PFASs Summations	Melbourne	Sep 15, 2023	
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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Project Name: WA_0967_PFASOMP_23
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525
Report #: 1026632
Phone: 0458 839 200
Fax:

Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	0967_QC201_230911	Sep 11, 2023		Water	L23-Se0036567			X
2	0967_QC203_230911	Sep 11, 2023		Water	L23-Se0036568			X
3	0967_QC204_230911	Sep 11, 2023		Water	L23-Se0036569			X
4	0967_QC205_230911	Sep 11, 2023		Water	L23-Se0036570			X
5	0967_QC206_230911	Sep 11, 2023		Water	L23-Se0036571			X
6	0967_QC207_230913	Sep 13, 2023		Water	L23-Se0036572			X
7	0967_QC208_230913	Sep 13, 2023		Water	L23-Se0036573			X

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Project Name: WA_0967_PFASOMP_23
Project ID: WA_0967_PFASOMP_23

Order No.: 304700525
Report #: 1026632
Phone: 0458 839 200
Fax:

Received: Sep 15, 2023 2:00 PM
Due: Sep 22, 2023
Priority: 5 Day
Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail						CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370						X		
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X
8	0967_QC209_230913	Sep 13, 2023		Water	L23-Se0036574			X
9	0967_QC210_230913	Sep 13, 2023		Soil	L23-Se0036575		X	X
10	0967_QC211_230913	Sep 13, 2023		Water	L23-Se0036576			X
11	0967_QC212_230914	Sep 14, 2023		Water	L23-Se0036577	X		
12	0967_QC213_230914	Sep 14, 2023		Water	L23-Se0036578			X
13	0967_QC214_230914	Sep 14, 2023		Soil	L23-Se0036579		X	X
14	0967_QC215_230914	Sep 14, 2023		Water	L23-Se0036580			X
15	0967_QC217_230915	Sep 15, 2023		Water	L23-Se0036581			X
16	0967_QC202_230911	Sep 11, 2023		Water	L23-Se0036582			X

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Address: 6F 226,Adelaide Terrace
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Contact Name: ALL INVOICES

Eurofins Analytical Services Manager : Elden Garrett

Sample Detail	CANCELLED	Moisture Set	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370	X		
Melbourne Laboratory - NATA # 1261 Site # 1254		X	X
Test Counts	1	2	15

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	**mg/L:** milligrams per litre	**µg/L:** micrograms per litre
ppm: parts per million	**ppb:** parts per billion	**%:** Percentage
org/100 mL: Organisms per 100 millilitres	**NTU:** Nephelometric Turbidity Units	**MPN/100 mL:** Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	97			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	91			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	88			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	91			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	82			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	85			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	82			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	82			50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	86			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	92			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	92			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	94			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	84			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	87			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	%	83			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	92			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	95			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	75			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	78			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	103			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	76			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	78			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	86			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	87			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	90			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1					
Perfluorobutanoic acid (PFBA)	L23-Se0036569	CP	%	108			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	L23-Se0036569	CP	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	L23-Se0036569	CP	%	104			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	L23-Se0036569	CP	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	L23-Se0036569	CP	%	102			50-150	Pass	
Perfluorononanoic acid (PFNA)	L23-Se0036569	CP	%	101			50-150	Pass	
Perfluorodecanoic acid (PFDA)	L23-Se0036569	CP	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	L23-Se0036569	CP	%	92			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	L23-Se0036569	CP	%	89			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	L23-Se0036569	CP	%	136			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L23-Se0036569	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	L23-Se0036569	CP	%	91			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L23-Se0036569	CP	%	101			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L23-Se0036569	CP	%	87			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L23-Se0036569	CP	%	116			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L23-Se0036569	CP	%	89			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L23-Se0036569	CP	%	95			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L23-Se0036569	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	L23-Se0036569	CP	%	89			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	L23-Se0036569	CP	%	98			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	L23-Se0036569	CP	%	99			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L23-Se0036569	CP	%	86			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L23-Se0036569	CP	%	93			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L23-Se0036569	CP	%	104			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	L23-Se0036569	CP	%	104			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	L23-Se0036569	CP	%	77			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L23-Se0036569	CP	%	77			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L23-Se0036569	CP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L23-Se0036569	CP	%	96			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L23-Se0036569	CP	%	102			50-150	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L23-Se0036580	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L23-Se0036580	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Comments

V2: Matched sample IDs with the COC for all samples. Date on sample ID's were incorrectly transcribed.
NOTE 0967_QC212_230911 was received with no volume, so sample was cancelled for analysis.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Elden Garrett	Analytical Services Manager
Joseph Edouard	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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APPENDIX

D

FIELD RECORDS & CALIBRATION CERTIFICATES

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Monitoring Date	Monitoring Area	Monitoring Location	Sample_ID	Screen Interval (mBGL)	TOC (mAHD)	Well Depth (m)	SWL (mbTOC)	RWL (mAHD)	Other Observations	Sampling Method	Temp (°C)	DO (mg/L)	EC (us/Cm)	TDS (mg/L)	pH	Eh (mV)	QC Sample #	Odour Comments	Colour
25/09/2023	Source Area A	MW015	0967_MW015_230925	0.5-4_	45.27	4.0	1.02	44.25		HydraSleeve	19.3	2.25	636	413.3	6.3	-10.9			
25/09/2023	Source Area A	MW052	0967_MW052_230925	0.7-5_	44.834	5.0	1.39	43.444		HydraSleeve	19.2	3.81	1031	670	6.51	-10			Clear
25/09/2023	Source Area A	MW053	0967_MW053_230925	1-6_	45.265	6.0	1.6	43.665		HydraSleeve	20.2	6.26	474	311	6.7	-11.9			
25/09/2023	Source Area A	MW055	0967_MW055_230925	0.7-5_	45.932	5.0	2.82	43.112		HydraSleeve	20.8	4.68	672	437.1	7.07	-8.4			
25/09/2023	Source Area A	MW101	0967_MW101_230925	10.1-13.1_	45.279	13.6	8.86	36.419		HydraSleeve	23.3	2.22	262.1	1706	6.1	-87			
25/09/2023	Source Area A	MW102	0967_MW102_230925	8.3-12.8_	44.744	12.8	8.41	36.334	Partially blocked by old hydrasleeve, insufficient water for field parameters and green bottle	HydraSleeve									
25/09/2023	Source Area B	MW103	0967_MW103_230925	11-15.5_	44.082	15.5	10.18	33.902		HydraSleeve	21	2.93	5047	3282	5.45	-220.7		hydrogen sulfur	Black
25/09/2023	Source Area B	MW104	0967_MW104_230925	8-14_	40.244	14.0	7.79	32.454		HydraSleeve	20	2.9	4815	3131	5.23	-2.3			Brown
25/09/2023	Source Area B	MW105	0967_MW105_230925	9-12_	40.072	12.0	7.6	32.472		HydraSleeve	20.8	1.35	4711	3062	5.58	-1.5			
25/09/2023	Source Area C	MW107	0967_MW107_230925	10.9-16.9_	46.671	16.9	9	37.671		HydraSleeve	21.7	2.37	9272	6020	5.73	-13.7			
25/09/2023	Source Area C	MW109	0967_MW109_230925	7-12.5_	47.266	12.5	9.715	37.551		HydraSleeve	20.4	3.45	8221	5355	5.41	-23.3			
25/09/2023	Source Area C	MW110	0967_MW110_230925	12.5-18.5_	47.921	18.5	12.16	35.761		HydraSleeve	21	1.31	4799	3120	5.54	-1.1			
13/09/2023	Source Area D	MW112	0967_MW112_230913	11.9-17.9_	51.291	17.9	14.02	37.271		HydraSleeve	19.6	1.94	3544	2577	5.52	-56.4	QC107/207		Clear
13/09/2023	Source Area D	MW113	0967_MW113_230913	14-20_	51.454	20.0				HydraSleeve	18.1	3.45	1741	1306	6.1	-49.5	QC108/208		Cloudy
14/09/2023	On-site - Other	MW114	0967_MW114_230914	10-16_	44.274	16.0	1.21	43.064		HydraSleeve	20.2	4.21	997	714	5.73	-1.3			Clear
13/09/2023	On-site - Other	MW115	0967_MW115_230913	5.5-11.5_	33.733	11.5	2.09	31.643		HydraSleeve	19.7	1.99	1682	1217	6.64	-39.2			Clear
13/09/2023	On-site - Other	MW116	0967_MW116_230913	13.8-18.3_	51.664	18.3	15.56	36.104		HydraSleeve	19.3	1.44	4532	3314	5.23	-78.5			Cloudy
11/09/2023	On-site - Other	MW117	0967_MW117_230911	15.1-18.1_	44.6	18.1	11.53	33.07		HydraSleeve	21.7	9.9	4335	3009	5.03	-75			Clear
11/09/2023	On-site - Other	MW118	0967_MW118_230911	9.2-15.2_	38.216	15.2	6.62	31.596		HydraSleeve	23.4	1.71	3945	2646	5.05	-73.4			Brown
11/09/2023	On-site - Other	MW119	0967_MW119_230911	9-15_	32.748	15.0	3.2	29.548		HydraSleeve	23.3	1.8	1411	947	5.07	-113.8	QC104/204		Brown
11/09/2023	On-site - Other	MW120	0967_MW120_230911	4.3-10.3_	29.47	10.3	1.12	28.35		HydraSleeve	21.2	1.49	6875	4817	4.95	-35.9	QC105/205		Clear
11/09/2023	On-site - Other	MW121	0967_MW121_230911	5.3-11.3_	30.171	11.3	3.71	26.461		HydraSleeve	22	1.28	4388	3024	5.36	-73.2			Brown
13/09/2023	On-site - Other	MW122D	0967_MW122D_230913	24-30_	32.731	30.0	2.05	30.681		HydraSleeve	18.4	19.1	1598	1192	7.47	-169.4		Sulfur	Clear
13/09/2023	On-site - Other	MW122S	0967_MW122S_230913	4.5-10.5_	32.691	10.5	2.05	30.641		HydraSleeve	17.5	2.03	1530	1163	5.99	66.4	QC111,211		Clear
13/09/2023	On-site - Other	MW123D	0967_MW123D_230913	23.5-29.5_	32.542	29.5	4.52	28.022		HydraSleeve	18	1.09	1397	1049	7.44	-37.2			Clear
13/09/2023	On-site - Other	MW123S	0967_MW123S_230913	6-12_	32.601	12.0	2.48	30.121		HydraSleeve	18.4	1.02	4464	3331	6.04	-86.7		Hydrogen sulfide	Clear
19/09/2023	On-site - Other	MW124D	0967_MW124D_230919	24-30_	30.194	30.0	0.91	29.284		HydraSleeve	19	3.17	2641	1716	6.76	-12.4			
19/09/2023	On-site - Other	MW124S	0967_MW124S_230919	3-9_	30.126	9.0	0.86	29.266		HydraSleeve	19.5	2.73	5544	3604	6.18	-5.6			
14/09/2023	Off-site	MW125D	0967_MW125D_230914	24-30_	33.204	30.0	0.94	32.264		HydraSleeve	20.3	0.99	8088	5760	6.73	-75.4			Clear
14/09/2023	Off-site	MW125S	0967_MW125S_230914	6-12_	33.303	12.0	0.91	32.393		HydraSleeve	20	1.73	10154	7300	6.99	-32.7			Clear
14/09/2023	Off-site	MW126	0967_MW126_230914	6-12_	35.657	12.0	1.05	34.607		HydraSleeve	19.7	1.9	1687	1220	6.79	-51.2			Brown
15/09/2023	Off-site	MW127	0967_MW127_230915	7-11_	35.027	11.0	1.78	33.247		HydraSleeve	18.7	3.56	714	528	7.35	32.6			Brown
15/09/2023	Off-site	MW128D	0967_MW128D_230915	24-30_	32.332	30.0	0.68	31.652		HydraSleeve	17.9	0.7	586	440.5	9.44	26.4			Clear
15/09/2023	Off-site	MW128S	0967_MW128S_230915	6-12_	32.313	12.0	0.73	31.583		HydraSleeve	18.3	1.15	295.3	220.1	7.55	19.8		Sulfur like odour	Clear
15/09/2023	Off-site	MW129D	0967_MW129D_230915	24-30_	33.738	30.0	2.08	31.658		HydraSleeve	19.5	1.1	1216	884	7.28	59.6			Clear
15/09/2023	Off-site	MW129S	0967_MW129S_230915	5-11_	33.714	11.0	2.014	31.7		HydraSleeve	19.3	1.84	1100	803	7.47	24.9			Clear
15/09/2023	Off-site	MW130D	0967_MW130D_230915	24-30_	32.407	30.0	1.48	30.927		HydraSleeve	19.6	0.72	694	503	7.55	-151.3			Clear
15/09/2023	Off-site	MW130S	0967_MW130S_230915	4-10_	32.43	10.0	1.66	30.77		HydraSleeve	19.4	1.13	1057	769	7.43	-25.9			Clear
25/09/2023	On-site - Other	MW132D	0967_MW132D_230925	24-30_	42.424	30.0	7.42	35.004		HydraSleeve	21.9	1.29	2246	1460	7.4	-189.3			
25/09/2023	On-site - Other	MW132S	0967_MW132S_230925	8-14_	42.352	14.0	7.42	34.932		HydraSleeve	22.7	2.4	5483	3565	5.47	-49.9			Clear
25/09/2023	On-site - Other	MW134D	0967_MW134D_230925	24-30_	40.291	30.0	8.02	32.271		HydraSleeve	22.2	2.18	1310	851	6.16	96.3			
25/09/2023	On-site - Other	MW134S	0967_MW134S_230925	8-14_	40.45	14.0	8.13	32.32		HydraSleeve	22.6	1.43	6418	4172	5.06	-14.1			Clear
14/09/2023	Off-site	MW136	0967_MW136_230914	6-12_	33.597	12.0	1.5	32.097		HydraSleeve	19.7	0.57	1256	909	7.19	-196.4		Hydrogen sulfide	Yellow
14/09/2023	Off-site	MW137	0967_MW137_230914	4.5-10.5_	33.849	10.5	1.2	32.649		HydraSleeve	18.4	2.3	5390	4024	7.28	-169.8		Hydrogen sulfide	Yellow
11/09/2023	On-site - Other	MW138	0967_MW138_230911	6-12_	28.582	12.0	1.21	27.372		HydraSleeve	21.5	0.65	3722	2595	6.93	-73.2		Hydrogen sulfide	Black
11/09/2023	On-site - Other	MW139	0967_MW139_230911	6-12_	31.45	12.0	3.32	28.13		HydraSleeve	22.7	2.23	2391	1626	4.85	-40.3			Brown
11/09/2023	On-site - Other	MW140D	0967_MW140D_230911	24-30_	28.755	30.0	2.32	26.435		HydraSleeve	21.1	0.82	2406	1688	7.68	-127.7			Brown
11/09/2023	On-site - Other	MW140S	0967_MW140S_230911	5.6-11.6_	28.835	11.6	1.98	26.855		HydraSleeve	21.4	0.9	2907	2027	4.93	-74			Clear
13/09/2023	On-site - Other	MW146	0967_MW146_230913	13-19_	55.315	19.0	16.56	38.755		HydraSleeve	19.2	4.02	3486	2554	5.29	12.1	QC109/209		Brown,Cloudy
13/09/2023	On-site - Other	MW149	0967_MW149_230913	12-18_	44.355	18.0	12.14	32.215		HydraSleeve	18.4	3.6	3985	2963	6.14	-50			Brown
13/09/2023	On-site - Other	MW150	0967_MW150_230913	16-22_	50.609	22.0	16.86	33.749		HydraSleeve	19.4	2.01	2014	1473	6.56	26			Cloudy
25/09/2023	Source Area J	MW155S	0967_MW155S_230925	8-14.5_	48.59	14.5	12.52	36.07		HydraSleeve	22.8	2.21	6831	4440	5.37	-6.9			Clear
19/09/2023	Source Area R	MW202	0967_MW202_230919	9.3-12.3_	52.594	12.3	7.71	44.884		HydraSleeve	21.7	2.02	1879	1221	6.17	-31.4			
19/09/2023	Source Area R	MW205	0967_MW205_230919	6-9_	44.96	9.0	3.84	41.12		HydraSleeve	20	4.79	3278	2131	5.87	-50.2			Brown
19/09/2023	On-site - Other	MW218	0967_MW218_230919	0.4-10_	44.0	10.0	1.1	42.9		HydraSleeve	19.6	5.83	342.6	222.6	7.48	-18.8			

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D2 - Private Bores Field Parameters

PFAS OMP
RAAF Base Pearce
Post-winter 2023

Monitoring Date	Monitoring Location	Sample_ID	Comments	Sampling Method	Temp (°C)	DO (mg/L)	EC (us/Cm)	TDS (mg/L)	pH	R1 - Eh (mV)	QC Dup Sample #	Odour	Colour
15/09/2023	POT003	0967_POT003_230915		Tap	18.8	1.16	1037	764	7.32	90			Clear
22/09/2023	POT009	0967_POT009_230922		Tap	23.1	1.88	1744	1134	5.42	-2.5			Clear
18/09/2023	POT014	0967_POT014_230918		Tap	13.9	7.49	955	621	7.63	-13.4			
14/09/2023	POT015	0967_POT015_230914		Tap	20.4	1.03	736	525	7.12	-22.8	QC115/215		Clear
18/09/2023	POT018		Owner withdrew consent to sample. Wishes to be taken off program. Not sampled										
18/09/2023	POT019	0967_POT019_230918		Tap	20.3	3.57	4059	2624	5.39	-13		H2S odour	Clear
18/09/2023	POT020	0967_POT020_230918		Tap	19.1	7.03	187.3	121.3	6.45	0.8			Clear
18/09/2023	POT021	0967_POT021_230918		Tap	16.6	6.23	722	469	8.01	-17.1			
18/09/2023	POT027	0967_POT027_230918		Tap	16.7	3.33	669	434.9	7.52	-2.2			
22/09/2023	POT029	0967_POT029_230922		Tap	23	1.47	569	369.7	7.15	-11.2			Clear
22/09/2023	POT030	0967_POT030_230922		Tap	20.4	4.26	1500	975	7.62	70.6			Clear
19/09/2023	POT031	0967_POT031_230919		Tap	18.2	3.78	1196	777	7.65	11.6			Clear
14/09/2023	POT032	0967_POT032_230914		Tap	18.8	1.35	359.1	266.1	7.66	76.8	QC113 / 213		Clear
22/09/2023	POT040	0967_POT040_230922		Tap	27.6	4.52	1439	936	7.13	-9.7			Clear
22/09/2023	POT042	0967_POT042_230922		Tap	22.5	0.68	728	473.1	7	4			Clear
22/09/2023	POT044	0967_POT044_230922		Tap	23.3	0.89	2145	1394	7.2	-10.3			Clear
19/09/2023	POT052	0967_POT052_230919		Tap	18.1	4.61	1650	1072	7.4	267			
18/09/2023	POT070S	0967_POT070S_230918		Tap	20.3	2.18	3127	2032	7.18	-30.4			Clear
	POT070D	0967_POT070D_230918	no field records	Tap									
19/09/2023	POT073	0967_POT073_230919		Tap	19.3	4.77	1647	1070	7.48	-2			
22/09/2023	POT076	0967_POT076_230922		Tap	25.7	1.82	1229	801	7.18	-6.6			Clear
18/09/2023	POT080	0967_POT080_230918		Tap	16.3	1.9	1029	669	7.59	17.2			
18/09/2023	POT081	0967_POT081_230918		Tap	19.2	4.83	1179	767	7.39	8.2			
27/09/2023	POT086	0967_POT086_230927	no field records	Tap									
	POT089		Unable to reach the property owner - not sampled										
22/09/2023	POT092	0967_POT092_230922		Tap	22	4.21	2829	1839	7.42	40.8			Clear
19/09/2023	POT099	0967_POT099_230919		Tap	18.4	2.93	1318	856	7.51	-18.8			Clear
14/09/2023	POT100	0967_POT100_230914		Tap	13.3	1.46	1190	994	7.3	80.2			Clear
19/09/2023	POT114	0967_POT114_230919		Tap	17.3	4.66	1522	989	7.72	1.1			Clear
14/09/2023	POT116	0967_POT116_230914		Tap	16.8	4.35	1380	1063	7.48	86.9			Clear
19/09/2023	POT124	0967_POT124_230919		Tap	19.9	1.39	497	3227	7.67	-33.7			Clear
	POT125		Power has been turned off at the property - not sampled										
18/09/2023	POT127	0967_POT127_230918		Tap	15.3	7.01	802	522	7.9	-2.4			
22/09/2023	POT128	0967_POT128_230922		Tap	25.9	3.38	2109	1372	7.49	-156.2			Clear
18/09/2023	POT136	0967_POT136_230918		Tap	16.4	2.03	670	435.6	7.68	-13.5			
22/09/2023	POT137	0967_POT137_230922		Tap	28	1.45	1536	999	7.3	7.7			Clear
14/09/2023	POT147	0967_POT147_230914		Tap	17.4	3.72	964	733	7.37	55.3	QC112/212		Clear
18/09/2023	POT155	0967_POT155_230918		Tap	17.3	1.64	1352	879	7.37	-31.3			
15/09/2023	POT159	0967_POT159_230915		Tap	18.6	3.6	1256	800	7.02	23			Cloudy
18/09/2023	POT165	0967_POT165_230918		Tap	20.1	3.79	12226	797	7.46	0			
15/09/2023	POT181	0967_POT181_230915		Tap	18.4	3.37	393.3	292.2	7.78	12.8	QC117/217		Clear

Monitoring Location	Date	Sample ID	Sampling Method	Sample Depth (m)	WaterBody Depth (m)	Location	Flow Rate	Comments	Temp (°C)	DO (mg/L)	EC (us/Cm)	TDS (mg/L)	pH	Eh (mV)	Water Colour	Turbidity
SW002	25/09/2023							Dry								
SW005	25/09/2023							Dry								
SW007	25/09/2023							Dry								
SW008	25/09/2023	0967_SW008_230925	Direct_into_Bottle	0.1	0.4	Onsite	Slow		18.7	5.97	460.9	300	6.78	-8.1		Medium
SW010	25/09/2023	0967_SW010_230925	Direct_into_Bottle	0.1	0.3	Onsite	Slow		18.1	7.2	269.1	174.4	7.37	-4.9	Brown	Medium
SW013	25/09/2023	0967_SW013_230925	Direct_into_Bottle	0.1	0.3	Onsite	Slow		18.2	6.78	279.3	181.6	6.92	-0.3		Medium
SW015	25/09/2023	0967_SW015_230925	Direct_into_Bottle		0.1	Onsite	Slow		16.2	4.06	384.5	250.5	6.46	-8.3		Medium
SW016	11/09/2023	0967_SW016_230911	Direct_into_Bottle	0.1	0.3	Onsite	Slow	QC106/206	22.9	7.54	401.8	272	7.89	8.9	Cloudy	Medium
SW018	25/09/2023	0967_SW018_230925	Direct_into_Bottle			Onsite	Slow		20.7	6.49	584	378.2	7.58	-62.1		Low
SW020	11/09/2023	0967_SW020_230911	Direct_into_Bottle	0.1	0.4	Onsite	Slow	QC102/202	20.5	6.65	457	325	7.96	-71.9	Cloudy	Medium
SW021	14/09/2023	0967_SW021_230914	Direct_into_Bottle	0.1	1.2	Onsite	Fast		17	6.4	1688	1295	7.42	-43.5	Brown Tannin	High
SW022	19/09/2023	0967_SW022_230919	Direct_into_Bottle	0.1	0.3	Onsite	Slow		20.1	6.79	1020	663	7.49	-11.5		Medium
SW024	15/09/2023	0967_SW024_230915	Direct_into_Bottle	0.1	1	Offsite	Medium		17.1	5.49	1478	1130	7.27	78.1	Brown	High
SW025	13/09/2023	0967_SW025_230913	Direct_into_Bottle	0.1	0.3	Onsite	Medium		16	5.99	79.5	62.4	6.89	-0.3	Clear	Low
SW026	14/09/2023	0967_SW026_230914	Direct_into_Bottle	0.1	0.9	Offsite	Fast		15.3	7.18	1066	851	7.26	-0.7	Brown	High
SW028	19/09/2023	0967_SW028_230919	Direct_into_Bottle	0.1	3	Onsite	Slow		18.5	3.36	1603	1042	6.5	-8.9	Brown Tannin	Low
SW029	19/09/2023	0967_SW029_230919	Direct_into_Bottle	0.1	0.2	Offsite	Slow		18	4.6	1294	841	6.6	-8.7		
SW032	11/09/2023	0967_SW032_230911	Direct_into_Bottle	0.1	0.3	Onsite	Slow	QC103/203	18	3.77	625	468.8	7.28	42.1	Brown	Medium
SW034	11/09/2023	0967_SW034_230911	Direct_into_Bottle	0.1	0.4	Onsite	Slow		19.7	5.17	593	428.6	7.38	-30.3	Brown	Medium
SW035	11/09/2023	0967_SW035_230911	Direct_into_Bottle	0.1	0.3	Onsite	Slow		20.3	5.21	596	426	7.53	47.6	Brown	Medium
SW036	18/09/2023	0967_SW036_230918	Direct_into_Bottle	0.1	0.5		Medium		16.9	11.06	1063	691	7.6	-4.9	Clear	Low
SW038	18/09/2023	0967_SW038_230918	Direct_into_Bottle	0.1	0.5	Onsite	Medium		17	11.02	1013	659	7.36	-15.1	Brown	Low
SW042	15/09/2023	0967_SW042_230915	Direct_into_Bottle	0.1	0.9	Offsite	Medium		16.8	5.72	1486	1143	7.14	35.8	Brown	High
SW044	11/09/2023	0967_SW044_230911	Direct_into_Bottle	0.1	0.3	Onsite	Medium	QC101/201	18.6	5.65	835	617	7.05	-19.5	Clear	Low
SW046	13/09/2023	0967_SW046_230913	Direct_into_Bottle	0.1	0.5	Onsite	Medium		15.7	5.53	618	488.2	7.13	36	Brown cloudy	High
SW047	18/09/2023	0967_SW047_230918	Direct_into_Bottle	0.1	1	Onsite	Medium		18.7	6.99	1740	1133	6.96	-8	Brown Tannin	Low
SW048	18/09/2023	0967_SW048_230918	Direct_into_Bottle	0.1	1.2	Onsite	Fast		18.1	68.3	1749	1137	7.24	-5.9	Brown Tannin	Low
SW049	19/09/2023	0967_SW049_230919	Direct_into_Bottle	0.1	0.5	Onsite	Medium		16.4	5.15	1764	1147	7.18	-11.6	Brown Tannin	Low
SW050	18/09/2023	0967_SW050_230918	Direct_into_Bottle			Offsite	Medium		17.5	5.5	1527	993	7.12	-9.4		Low
SW052	19/09/2023	0967_SW052_230919	Direct_into_Bottle	0.1	1	Onsite	Medium		16.1	4.43	1432	931	7.24	-17.2	Brown tannin	Low
SW053	14/09/2023	0967_SW053_230914	Direct_into_Bottle	0.1	0.8	Onsite	Medium		17.2	5.04	4119	314.8	6.96	58.2	Brown	High
SW055	14/09/2023	0967_SW055_230914	Direct_into_Bottle	0.1	0.6	Offsite	Fast		17.7	5.08	606	456	7.02	-44.7	Brown	High
SW057	15/09/2023	0967_SW057_230915	Direct_into_Bottle	0.1	0.4	Offsite	Slow		18.7	4.74	600	443	7.25	32.8	Brown	Medium
SW058	14/09/2023	0967_SW058_230914	Direct_into_Bottle	0.1	0.9	Onsite	Slow		14.9	5.21	502	4042	7.27	84.3	Brown	High
SW059	14/09/2023	0967_SW059_230914	Direct_into_Bottle	0.1	0.8	Onsite			14.8	6.15	535	430.9	7.32	75.3	Brown	High
SW060	14/09/2023	0967_SW060_230914	Direct_into_Bottle	0.1	0.9	Onsite	Fast		14.8	10.38	993	800	7.2	9.4	Brown	High
SW066	18/09/2023	0967_SW066_230918	Direct_into_Bottle	0.1	0.3	Onsite	Slow		18.3	8.74	828	538	7.41	-14.1	Brown	High
SW067	18/09/2023	0967_SW067_230918	Direct_into_Bottle	0.1	0.2	Offsite	Slow		18.1	6.43	741	482	7.35	-13.8	Brown	High

Monitoring Location	Date	Sample ID	Depth of Sampling (m)	Sampling Method	Sample Condition	Sample Description	Other Comments
SD002	25/09/2023	0967_SD002_230925	0.1	Trowel	Dry	Gravelly clay	
SD007	25/09/2023	0967_SD007_230925	0.1	Trowel	Dry	Brown sandy clay with gravel, moist	
SD013	25/09/2023	0967_SD013_230925	0.1	Trowel	Wet	Sandy gravelly clay brown	
SD015	25/09/2023	0967_SD015_230925	0.1	Trowel	Wet	Gravelly silt	
SD018	25/09/2023	0967_SD018_230925	0.1	Trowel	Wet	Gravelly silt	
SD020	11/09/2023	0967_SD020_230911	0.1	Trowel	Wet	Clay, fine to med grained, brown, trace fines, traces gravels	
SD021	14/09/2023	0967_SD021_230914	0.1	Trowel	Wet	Silty sand, fine to med grained, dark brown, trace organics	
SD022	19/09/2023	0967_SD022_230919	0.1	Trowel	Wet	Brown sandy clay	
SD024	15/09/2023	0967_SD024_230915	0.1	Trowel	Wet	Silty sand, fine to medium grained	
SD025	13/09/2023	0967_SD025_230913	0.1	Trowel	Wet	Clayey , brown soil with gravel, medium grained	QC110/210
SD026	14/09/2023	0967_SD026_230914	0.1	Trowel	Wet	Silty sand, fine to medium grained, brown, trace organics	
SD028	19/09/2023	0967_SD028_230919	0.1	Trowel	Wet	Brown sandy clay	
SD029	19/09/2023	0967_SD029_230919	0.1	Trowel	Wet	Brown sandy clay	
SD032	11/09/2023	0967_SD032_230911	0.1	Trowel	Wet	Clay, fine to med grained, brown, trace organics	
SD034	11/09/2023	0967_SD034_230911	0.1	Trowel	Wet	Clay, fine to med grained, brown, trace fines	
SD035	11/09/2023	0967_SD035_230911	0.1	Trowel	Wet	Clay, fine to med grained, brown, trace gravels	
SD036	18/09/2023	0967_SD036_230918	0.1	Trowel	Wet	Loamy clay	
SD044	11/09/2023	0967_SD044_230911	0.1	Trowel	Wet	Clay, fine to med grained, brown, trace organics	
SD046	13/09/2023	0967_SD046_230913	0.1	Trowel	Wet	Clay,Fine to medium grained, brown trace gravel	
SD049	19/09/2023	0967_SD049_230919	0.1	Trowel	Wet	Silty sand brown	
SD050	18/09/2023	0967_SD050_230918	0.1	Trowel	Wet	Silty sand	
SD053	14/09/2023	0967_SD053_230914	0.1	Trowel	Wet	Silty sand, fine to med grained, brown, trace organics	QC116/216
SD055	14/09/2023	0967_SD055_230914	0.1	Trowel	Wet	Silty sand, fine to medium grained, trace organics	
SD058	14/09/2023	0967_SD058_230914	0.1	Trowel	Wet	Sand, fine to med grained, trace fines, trace organics	QC114/214
SD060	14/09/2023	0967_SD060_230914	0.1	Trowel	Wet	Silty sand, fine to med grained, brown grey, trace fill	
SD061	18/09/2023	0967_SD061_230918	0.1	Trowel	Wet	Silty sand brown	
SD062	18/09/2023	0967_SD062_230918	0.1	Trowel	Wet	Silty sand	

GK Environmental EQUIPMENT

Calibration Report

Multi-Parameter Water Quality Instrument

Customer:
Contact:

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 22B104437
Cable length: 1m (22B100428)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	172.60 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.52
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 12 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

						Instrument Readings		
Parameter	**Standards**	**Reference**	**Calibration Point**	**Span**	**Units**	**Before**	**After**	**Units**
Temperature (22B100315)	Check Temp NATA	Room Temp	16.8	0	°C	NA	16.8	°C
pH (22B)	pH 7.00	392512	7.01	-27.70	mV	7.04	7.01	pH
pH (22B)	pH 4.00	394799	4.00	144.90	mV	4	4.00	pH
Conductivity (22B100315)	2764 µs/cm at 25°C	23/0402	2764	GLP	5.03	2756	2764	µs/cm
ORP (22A)	Zobell A & B	23/2404	247	247	mV	236.9	235.1	mV
Zero DO (22B100173)	NaSO3 in distilled water	10175	0.0	NA	NA	1	0.0	%
100% DO (22B100173)	100% Air Saturation	Air	100.0	4.7	uA	95.8	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 23-Aug-23
Next Due: 19-Feb-24

Stantec

Calibration Report

Multi-Parameter Water Quality Instrument

Manufacturer: YSI
Instrument: Professional Plus with Quatro cable
Serial #: 21G105325
Cable length: 4m (21F100778)

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	needs spare
	Battery Saver	✓	
Connections	Condition	✓	
Cable	Condition	✓	
Display	Operation	✓	
Firmware	Version	✓	
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	
pH millivolts for pH7 calibration range 0 mV ± 50 mV		✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	
pH slope		✓	
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	
Conductivity			
Condition		✓	
Temperature		✓	
Conductivity cell constant 5.0 ± 1.0 in GLP file		✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	Galvanic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

				Instrument Readings				
Parameter	Standards	Calibration Point	Units	Before		After		Units
Temperature	Check Temp NATA		°C	NA				°C
pH 21G	pH 7.00	7.01	mV	7.01		7.0		pH
pH 21G	pH 4.00 4.13	4.00	mV	4.12		4.0		pH
Conductivity (21H100008) 1413	1413 µs/cm at 25°C	1413	5.03	1312		1413		µs/cm
ORP (Reference check only) 21O	Zobell A & B	235	mV	225		235		mV
Zero DO (21G100131)	NaSO3 in distilled water	0.0	NA	0.02		0.0		%
100% DO (21G100131)	100% Air Saturation	100.0	uA	100		100		%

Calibrated by: S. STURGIS **Calibration Date:** 26/8/23

Date of Bump Test	Site ID	Unit Brand/ Model	Ambient Air Oxygen Calibration	Zero % Oxygen Solution Calibration	Standard Concentrations	Ambient Temperature (°C)	Bump Test Reading	Bump Test Readings within ±5%?	Comment	Test by (Name)	(Signature)
11/09/23	0967_	YSI #21G105325	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N EC: 2,700 us/cm (Y)/N	16.3	pH 4.00: 4.05 pH 7.00: 7.11 EC: 1,482 2,812	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N 150 us/cm (Y)/N	None	[redacted]	[redacted]
13/09/23	0967_	YSI #21G105325	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N EC: 2,700 us/cm (Y)/N	15.9	pH 4.00: 4.07 pH 7.00: 7.04 EC: 1,463 2,785	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N ± 150 us/cm (Y)/N	None	[redacted]	[redacted]
14/09/23	0967_	YSI # 21G105325	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N 2,700 (Y)/N	13.0	pH 4.00: 4.12 pH 7.00: 7.08 EC: 1,328 2,700	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N (Y)/N	None.	[redacted]	[redacted]
15/09/23	0967_	YSI # 21G105325	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) N 2,700 (Y)/N	15.6	pH 4.00: 4.10 pH 7.00: 7.06 Temp: 1,368 EC: 2,812	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	None.	[redacted]	[redacted]
18/9		YSI # 22B104437	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	10.0	pH 4.00: 4.19 pH 7.00: 7.18 Temp: 10.03 EC: 1429	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y / N	None	[redacted]	[redacted]
19/9		YSI # 22B104437	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y / N	19.3	pH 4.00: 4.14 pH 7.00: 7.01 Temp: EC: 1485	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N	None	[redacted]	[redacted]
20/9		YSI # 22B104437	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	20.1	pH 4.00: 4.16 pH 7.00: 7.03 Temp: EC: 1432	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) N	None	[redacted]	[redacted]
25/9		YSI #	100% Saturation? (Y) N	0% Calibration? (Y) N NA	pH 4.00 (Y) / N pH 7.00 (Y) / N EC: 1,413µS/cm (Y) / N	22.1	pH 4.00: 4.08 pH 7.00: 7.1 Temp: 22.1 EC: 1491	pH 4.00: (± pH 0.2) (Y) / N pH 7.00: (± pH 0.2) (Y) / N EC: (± 150µS/cm) (Y) / N	—	[redacted]	[redacted]

APPENDIX

E

DATA QUALITY REVIEW

Cardno

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Stantec

Data Quality Review
PFAS Ongoing Monitoring Plan
Post-winter 2023 Monitoring Event

This appendix reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing as well as results of QC samples submitted such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

QA/QC Aspects	Evidence & Evaluation
	QA Documentation
Project Quality Plan/Work Plan and Data Quality Objectives	The field investigation was carried out between the 11th and 28th September 2023 and is generally in accordance with the proposed scope of work, as documented in the SAQP (*PFAS OMP SAQP RAAF Base Pearce Rev 8*, Cardno, August 2023) issued to the client and in general compliance with Standards Australia 1998. AS/NZ 5667:1998 *Water quality – sampling*, *National Environment Protection (Assessment of Site Contamination) Measure* and *PFAS NEMP 2.0.* A quality control program was implemented during the Investigation and the quality assurance procedures used have been reiterated in the report (PFAS OMP post-winter 2023 Factual Report). In addition, a safety, health and environment work method statement (SHEWMS) was also prepared. The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.
	Data Representativeness
Use of Composites	No Composites were used during the investigation
Holding Times	Chain of custody and laboratory reports provide evidence of holding times. Holding times were generally in compliance with required timeframes. The following exception was noted: ▪ Dissolved Major Cations – 2 days overdue: - EP2312965 (SW037, SW038, SW048, SW067, SW036, SW047, SW066, SW050). The holding time exceedances for a minority of analytes are not considered to have adversely impacted the reliability of the results obtained, or the conclusions drawn from this assessment.
Verification of field procedures	The methodology conducted during this investigation is documented in the body of the report and was in general conformance with the SAQP. Non-disposable equipment was decontaminated between sample locations.
Laboratory Reports	The following laboratory reports were considered for this data quality review: ▪ ALS reports: EP2312521, EP2312522, EP2312523, EP2312633, EP2312634, EP2312635, EP2312710, EP2312711, EP2312714, EP2312715, EP2312717, EP2312718, EP2312719, EP2312720, EP2312724, EP2312794, EP2312799, EP2312800, EP2312801, EP2312802, EP2312803, EP2312954, EP2312955, EP2312956, EP2312957, EP2312959, EP2312960, EP2312961, EP2312963, EP2312964, EP2312965, EP2312966, EP2312967, EP2312968, EP2312970, EP2312971, EP2312972, EP2312973, EP2312974,

<table>
<tr><th>QA/QC Aspects</th><th>Evidence & Evaluation</th></tr>
<tr><td></td><td>EP2312975, EP2312976, EP2313011, EP2313215, EP2313216, EP2313217, EP2313219, EP2313220, EP2313222, EP2313223, EP2313224, EP2313225, EP2313226, EP2313227, EP2313262, EP2313263, EP2313265, EP2313502, EP2313504.
▪ Eurofins report: 1026632</td></tr>
<tr><td colspan="2">Data Precision & Accuracy</td></tr>
<tr><td>QC sample Frequency</td><td>
<table>
<tr><th>QC sample type</th><th>SAQP required frequency</th><th>Sample Collected</th></tr>
<tr><td>Blind duplicate</td><td>1 in 10 primary samples (10%)</td><td>4 for 38 tap water samples (10.5%)
6 for 55 groundwater samples (10.9%)
4 in 36 surface water samples (11.1%)
3 in 29 sediment samples (10.3%)</td></tr>
<tr><td>Interlab duplicate</td><td>1 in 10 primary samples (10%)</td><td>3 for 38 tap water samples (7.9%)
6 for 55 groundwater samples (10.9%)
4 in 36 surface water samples (11.1%)
2 in 29 sediment samples (6.9%)</td></tr>
<tr><td>Rinsate</td><td>1 per equipment per day</td><td>12 for 8 days (1-2 teams) (100%)</td></tr>
<tr><td>Field Blank</td><td>1 per day</td><td>12 for 9 days (1-2 teams) (100%)</td></tr>
</table>
The required frequency was not achieved for the interlab duplicates for the tap water samples (7.9% achieved, target 10%) and sediment samples (6.9%) due to leaking sample bottles and misplaced sample respectively. This is not considered to have affected the validity of the dataset as all other QC frequencies were above target.</td></tr>
<tr><td>RPD Acceptance criteria</td><td>
<table>
<tr><th>Magnitude of Results</th><th>Acceptable RPD range</th></tr>
<tr><td>< 10 x LOR</td><td>No limits</td></tr>
<tr><td>10 – 20 LOR</td><td>0% - 50%</td></tr>
<tr><td>> 20 x LOR</td><td>0% - 20%</td></tr>
</table></td></tr>
</table>

QA/QC Aspects	Evidence & Evaluation
QC Testing – Blind Duplicates (Primary Lab)	***Groundwater*** ▪ Primary Groundwater Samples Analysed: 55 ▪ Blind Duplicate Samples Analysed: 6 All RPDs were within acceptance criteria. ***Tap water (private bores)*** ▪ Primary tap water Samples Analysed: 38 ▪ Blind Duplicate Samples Analysed: 4 All RPDs were within acceptance criteria. ***Surface water*** ▪ Primary surface water Samples Analysed: 36 ▪ Blind Duplicate Samples Analysed: 4 All RPDs were within acceptance criteria. ***Sediment*** ▪ Primary Sediment Samples Analysed: 29 ▪ Blind Duplicate Samples Analysed: 3 All RPDs were within acceptance criteria with the following exceptions: ▪ QC110 (PFHxS – 81%, PFOS – 99%) These exceedances are possibly due to sample heterogeneity and the low level of analytes concentrations. Reported concentrations for primary and secondary samples are within expected range and this doesn't change the outcome of the assessment. The highest concentration value will be adopted for the assessment.
QC Testing – Interlab Duplicates (Secondary Lab)	***Groundwater*** ▪ Primary Groundwater Samples Analysed: 55 ▪ Interlab Duplicate Samples Analysed: 6 All RPDs were within acceptance criteria. ***Tap water (private bores)*** ▪ Primary tap water Samples Analysed: 38 ▪ Interlab Duplicate Samples Analysed: 3 All RPDs were within acceptance criteria. ***Surface water*** ▪ Primary surface water Samples Analysed: 36 ▪ Interlab Duplicate Samples Analysed: 4 All RPDs were within acceptance criteria with the following exceptions: ▪ QC202 (PFHxS – 129%, PFOS – 57%). ▪ QC203 (PFOS – 22%) The exceedances reported for a minority of results are likely due to the difference of laboratory methods or the low concentrations of analyte under review. This is not considered to have impacted the reliability of the dataset. ***Sediment*** ▪ Primary sediment Samples Analysed: 29 ▪ Interlab Duplicate Samples Analysed: 2 All RPDs were within acceptance criteria with the following exceptions: ▪ QC210 (PFHxS – 84%, PFOS - 37%) These exceedances are probably due to sample heterogeneity, the difference of laboratory methods or the low concentrations of analyte under review. The reported concentrations were within the same order of magnitude and this doesn't affect the reliability of the dataset or outcome of the investigation. The highest concentration value will be adopted for the assessment.
Field Blanks	Field Blanks were collected at a rate of one per fieldwork day per field team. All field blank samples tested reported analytes below the laboratory limit of reporting.

QA/QC Aspects	Evidence & Evaluation
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the reports. ALS (Primary) performed internal QC with adequate testing and satisfactory results for method blank, laboratory control samples and laboratory duplicates. All Method Blank and laboratory Duplicates results were within acceptable range. All Matrix Spikes generally reported recoveries within the acceptance range of 70% to 130% with the exception of the following: ▪ EP2312523, EP2312635, EP2313265, EP2313502, EP2313550: - Sample ID: SD044, SD018, Anonymous: PFOS matrix spike recoveries not determined due to the background concentrations exceeding 4x spike level. ▪ EP2312800 - Sample ID Anonymous: 6:2 FTS matrix spike recoveries not determined due to the background concentrations exceeding 4x spike level. ▪ EP2312965, EP2312967, EP2312976: - Samples ID: Anonymous: PFPeA, PFHxA, 6:2FTS, 8:2 FTS, 10:2 FTS matrix spike recovery not determined due to the background concentrations exceeding 4x spike level. - Sample ID: Anonymous: PFOS, PFPeA, 10:2 FTS recovery outside of data quality objective range. ▪ EP2313263: - Sample ID: MW053: PFBS, PFPeS, PFHxS, PFHpS, PFOS, PFPeA, PFHxA, PFOA matrix spike recovery not determined due to the background concentrations exceeding 4x spike level. The following quality control samples frequency outliers were reported: ▪ EP2312633, EP2312710, EP2312715, EP2312717, EP2312718, EP2312719, EP2312720, EP2312724, EP2312801, EP2312802, EP2312803, EP2313215, EP2313217, EP2313219, EP2313220, EP2313222, EP2313223, EP2313224, EP2313225, EP2313226, EP2313227, EP2313262, EP2313263: - Laboratory Duplicates (PFAS): expected frequency of 10% not achieved. - Matrix Spikes (PFAS): expected frequency of 5% not achieved. ▪ EP2312711, EP2312799, EP2312954, EP2312955, EP2312956, EP2312957, EP2312959, EP2312960, EP2312961, EP2312963, EP2312964, EP2312965, EP2312967, EP2312968, EP2312970, EP2312971, EP2312972, EP2312973, EP2312974, EP2312975, EP2312976, EP2313011, EP2313216: - Laboratory Duplicates (PFAS): expected frequency of 10% not achieved. The above outliers/exceptions are not considered to affect the reliability of the dataset.
Laboratory Method Detection Limit	Laboratory reports indicate the method detection limits were lower than the respective assessment criteria.
NATA endorsement of laboratory reports	Laboratory reports were stamped with the NATA endorsement stamp and signature. ALS Accreditation No. 825 Eurofins ARL Accreditation No. 1261
Calibration of Field Equipment	All equipment used during the investigation was calibrated by the supplier prior to use and daily readings of reference solutions (bump tests) were completed. The equipment calibration certificates, and daily field bump test records are provided in Appendix D..
Decontamination and Equipment Blanks	Rinsate blanks were collected at a rate of one per day per sampler when reusable equipment was used. All rinsate samples tested reported analytes concentrations below the laboratory LORs.
Data Comparability	
Standard Procedures	Fieldwork procedures are detailed in the SAQP and reports and are comparable for each phase of Investigation.

QA/QC Aspects	Evidence & Evaluation
Qualified Personnel	Staff involved in managing and reviewing the project and those involved in fieldwork are qualified personnel.
Sample Integrity	Field Chain of Custody/Laboratory request forms can be found in Appendix C.
	Data Completeness
Completeness of test program	The scope of work undertaken was generally consistent with the SAQP.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection process and therefore, the data set used as the basis for groundwater, surface water, tap water and sediment investigation is considered valid and complete.

APPENDIX

D

DATA ASSESSMENT

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						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*									
PFAS NEMP 2020 Recreational Water																**10**									
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Source Area A - FTA	MW015	8/09/2010	MW15	Normal	EP1005507					306						*7.53*									
	MW015	1/04/2011	MW15	Normal	EP1102104					141						*3.25*							<0.1		
	MW015	1/04/2011	QC1	Field Duplicate	EP1102104					143						*3.42*							<0.1		
	MW015	3/04/2012	D01_030412	Field Duplicate	EP1202560					252						*7.86*							0.3		
	MW015	3/04/2012	WA0067	Normal	EP1202560					262						*7.07*							0.3		
	MW015	12/09/2013	WA067-MW015	Normal	EP1306994					236						*3.77*									
	MW015	7/12/2015	WA0067-MW15	Normal	EP1516764					118						*4.76*							0.1	<0.1	
	MW015	9/03/2016	WA0067_MW15	Normal	EP1602025					285						*4.41*							<0.1	<0.1	
	MW015	1/11/2016	WA0067_MW15	Normal	EP1610384	3.69	4.37	85.9	2.75	406	<0.02	<0.1	2.00	18.5	0.82	*2.58*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	16/12/2016	MW15	Normal	529129					220						*2.6*							0.12		
	MW015	20/09/2017	WA0067-MW15	Normal	EP1710407	5.76	8.69	99.4	5.52	392	<0.10	1.4	4.15	24.9	2.21	*5.60*	0.14	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	0.15	0.10	<0.10
	MW015	6/03/2019	0967_MW015_190306	Normal	EP1902092	8.01	7.30	74.3	4.60	252	0.04	2.0	4.41	17.7	2.22	*5.83*	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.09	<0.05
	MW015	29/10/2019	0967_MW015_191029	Normal	EP1911154	7.38	7.92	80.3	7.96	231	0.02	2.0	4.04	20.9	1.86	*5.18*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.09	<0.05
	MW015	12/05/2020	0967_MW015_200512	Normal	EP2004835	7.17	9.87	91.8	7.00	547	<0.05	1.8	4.30	22.2	2.06	*6.88*	0.12	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
	MW015	12/05/2020	0967_QC101_200512	Field Duplicate	EP2004835	6.76	10.0	85.6	7.18	565	<0.05	1.8	4.21	20.5	2.05	*7.00*	0.11	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
	MW015	12/05/2020	0967_QC201_200512	Interlab Duplicate	719237	3.8	4.3	69	3.3	340	<0.01	1.1	2.3	14	1.3	*3.4*	0.12	0.02	0.02	<0.01	0.01	0.01	<0.01	<0.05	0.05	0.02
	MW015	13/10/2020	0967_MW015_201013	Normal	EP2011099	5.15	8.11	64.4	5.30	308	0.09	1.5	3.35	15.3	1.74	*4.04*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	29/04/2021	0967_MW015_210429	Normal	EP2104725	5.11	6.81	62.1	4.79	306	<0.02	1.7	3.64	23.7	1.89	*3.86*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	20/09/2021	0967_MW015_210920	Normal	EP2111153	2.97	3.86	36.7	2.76	195	0.08	0.8	1.86	9.40	0.78	*2.43*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	36.7	<0.05	<0.05	<0.05
	MW015	28/04/2022	0967_MW015_220428	Normal	EP2204974	2.78	3.68	28.4	3.44	157	0.04	0.7	1.76	7.98	0.76	*2.08*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	26/09/2022	0967_MW015_220926	Normal	EP2212405	2.07	3.81	21.5	3.46	153	0.08	0.8	1.56	5.75	0.76	*2.02*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	24/04/2023	0967_MW015_230424	Normal	EP2305259	2.62	3.18	31.4	1.83	130	<0.23	<1.2	1.32	7.80	0.44	*2.04*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW015	25/09/2023	0967_MW015_230925	Normal	EP2313263	2.22	2.14	21.5	4.24	83.2	<0.02	0.8	1.22	8.21	0.69	*1.82*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW052	1/11/2016	WA0067_MW052	Normal	EP1610384	41.8	30.3	378	6.05	2,380	<0.02	<0.1	11.4	103	5.20	***17.8***	<0.02	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW052	19/09/2017	WA0067-MW052	Normal	EP1710367	37.2	33.4	347	14.2	12,000	<0.10	9.4	16.2	105	7.17	***15.6***	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
	MW052	29/10/2019	0967_MW052_191029	Normal	EP1911154	34.5	29.2	239	9.12	686	0.36	7.1	15.1	84.2	5.60	***13.3***	0.18	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW052	12/05/2020	0967_MW052_200512	Normal	EP2004835	36.8	54.7	308	17.4	886	<0.05	7.2	18.1	106	6.46	***15.2***	0.18	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
	MW052	13/10/2020	0967_MW052_201013	Normal	EP2011099	25.7	37.6	237	12.9	669	0.35	4.9	12.2	67.0	4.68	*9.68*	0.16	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW052	29/04/2021	0967_MW052_210429	Normal	EP2104725	38.3	35.2	329	16.5	330	<0.02	8.1	18.3	77.5	7.10	***15.2***	0.19	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05
	MW052	20/09/2021	0967_MW052_210920	Normal	EP2111153	41.1	40.9	402	21.2	1,120	0.41	7.2	19.4	117	8.79	***18.8***	0.21	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW052	28/04/2022	0967_MW052_220428	Normal	EP2204974	26.9	29.8	231	12.3	858	0.67	5.9	13.5	74.4	5.58	***10.6***	0.27	0.07	<0.02	<0.02	<0.02	<0.05	<0.05	0.15	<0.05	<0.05
	MW052	26/09/2022	0967_MW052_220926	Normal	EP2212405	21.5	27.7	302	20.2	1,200	0.97	7.2	15.5	80.2	6.38	***17.3***	0.34	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	0.11	<0.05	<0.05
	MW052	24/04/2023	0967_MW052_230424	Normal	EP2305259	18.7	16.7	172	3.93	327	<0.44	4.2	9.97	53.2	3.88	*7.85*	0.16	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	0.08	<0.05	<0.05
	MW052	25/09/2023	0967_MW052_230925	Normal	EP2313263	10.4	9.13	90.2	2.80	267	<0.50	5.6	4.28	29.8	2.26	*5.02*	<0.50	0.05	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	1/11/2016	WA0067_MW053	Normal	EP1610384	3.72	3.22	55.3	2.03	76.4	<0.02	<0.1	1.58	7.82	0.44	*1.30*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	19/09/2017	WA0067-MW053	Normal	EP1710367	2.83	2.99	29.3	1.81	46.4	<0.02	1.1	1.45	6.00	0.43	*1.05*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	19/09/2017	WFD_LC_02	Field Duplicate	EP1710367	2.76	3.00	31.7	1.78	48.0	<0.02	1.1	1.43	5.77	0.45	*1.01*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	19/09/2017	WFS_LC_02	Interlab Duplicate	176252	2.7	2.2	29	0.60	39	<0.02	1.4	1.4	5.2	0.44	*1.0*	0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01
Source Area A - FTA	MW053	6/03/2019	0967_MW053_190306	Normal	EP1902092	2.94	2.94	27.4	1.53	38.8	<0.02	1.4	1.59	6.61	0.48	*1.03*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	29/10/2019	0967_MW053_191029	Normal	EP1911154	4.38	3.36	39.0	1.91	49.5	<0.02	1.3	1.68	8.29	0.50	*1.34*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	13/10/2020	0967_MW053_201013	Normal	EP2011099	4.34	4.97	41.0	2.01	51.6	<0.02	1.3	2.11	8.75	0.68	*1.45*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	20/09/2021	0967_MW053_210920	Normal	EP2111153	3.29	3.34	31.1	2.29	43.0	<0.02	1.2	1.75	7.53	0.44	*1.01*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	26/09/2022	0967_MW053_220926	Normal	EP2212405	3.50	3.69	41.4	4.49	114	<0.02	1.7	2.14	9.52	0.72	*2.03*	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW053	25/09/2023	0967_MW053_230925	Normal	EP2313263	3.16	2.64	30.3	4.26	36.7	<0.02	1.3	1.44	7.85	0.55	*1.40*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	3/04/2012	WA0067	Normal	EP1202560					4.1						*0.63*							<0.1		
	MW055	7/12/2015	WA0067-MW55	Normal	EP1516764					16.5						*0.93*							<0.1	<0.1	
	MW055	1/11/2016	WA0067_MW055	Normal	EP1610384	0.68	0.86	12.2	0.66	18.7	<0.02	<0.1	0.21	1.06	0.14	0.44	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	15/12/2016	MW55	Normal	529129					16						0.4							<0.05		
Source Area A - FTA	MW055	19/09/2017	WA0067-MW055	Normal	EP1710367	0.76	1.15	9.02	0.69	9.50	<0.02	0.2	0.33	1.44	0.18	0.53	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	29/10/2019	0967_MW055_191029	Normal	EP1911154	1.12	1.37	14.4	1.09	13.1	<0.02	0.3	0.46	2.09	0.25	*0.81*	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	12/05/2020	0967_MW055_200512	Normal	EP2004835	2.14	3.94	21.7	1.92	35.1	0.17	0.7	1.50	5.55	0.87	*1.45*	0.07	0.03	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	20/09/2021	0967_MW055_210920	Normal	EP2111153	1.12	2.03	13.3	1.42	21.9	0.06	0.3	0.61	2.25	0.30	*0.82*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	26/09/2022	0967_MW055_220926	Normal	EP2212405	1.19	2.32	17.4	1.68	27.9	0.06	0.4	0.63	2.72	0.36	*0.95*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW055	25/09/2023	0967_MW055_230925	Normal	EP2313263	0.76	0.95	8.17	1.35	14.5	0.02	0.2	0.30	1.60	0.22	*0.59*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	1/11/2016	GW_FD01	Field Duplicate	EP1610384	0.30	0.35	2.24	0.10	1.00	<0.02	<0.1	0.06	0.39	0.06	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	1/11/2016	GW_FS01	Interlab Duplicate	187968	0.27		2		0.4	<0.02	0.03		0.4	0.06	0.1	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	
	MW101	1/11/2016	SA_MW01	Normal	EP1610384	0.30	0.37	2.27	0.10	1.08	<0.02	<0.1	0.06	0.37	0.05	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	20/09/2017	SA_MW01	Normal	EP1710407	7.02	6.89	74.3	2.40	218	<0.10	2.1	4.09	14.8	1.20	*3.46*	0.31	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
	MW101	6/03/2019	0967_MW101_190306	Normal	EP1902092	3.48	3.47	23.4	1.15	57.8	<0.02	1.3	1.81	6.53	0.60	*1.43*	0.08	<0.02	<0.02	<0.02	<0.02	<0.05	23.4	<0.05	<0.05	<0.05
	MW101	29/10/2019	0967_MW101_191029	Normal	EP1911154	9.75	9.86	103	2.85	97.3	<0.02	3.9	5.71	26.6	2.45	*6.99*	0.12	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area A - FTA	MW101	12/05/2020	0967_MW101_200512	Normal	EP2004835	1.77	2.62	15.1	0.74	31.9	<0.02	0.5	0.90	3.86	0.39	*0.99*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	13/10/2020	0967_MW101_201013	Normal	EP2011099	8.02	10.4	87.2	2.68	123	0.15	3.2	4.16	16.7	1.76	*6.09*	0.13	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	29/04/2021	0967_MW101_210429	Normal	EP2104725	6.56	7.02	60.4	1.77	73.4	0.15	3.7	4.82	24.5	1.88	*4.31*	0.13	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	20/09/2021	0967_MW101_210920	Normal	EP2111153	22.9	36.6	226	11.2	234	0.36	6.2	9.21	51.3	5.27	***18.1***	0.38	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05
	MW101	28/04/2022	0967_MW101_220428	Normal	EP2204974	34.8	38.6	294	9.46	232	0.20	8.2	15.6	75.4	7.18	***20.1***	0.63	0.02	<0.02	<0.02	<0.02	<0.05	294	0.07	<0.05	<0.05
	MW101	26/09/2022	0967_MW101_220926	Normal	EP2212405	9.25	14.5	159	9.16	303	1.72	2.8	4.61	26.5	2.98	***16.1***	0.45	0.04	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	24/04/2023	0967_MW101_230424	Normal	EP2305259	1.57	1.87	23.1	0.89	38.1	0.10	0.4	0.58	3.37	0.41	*1.93*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW101	25/09/2023	0967_MW101_230925	Normal	EP2313263	9.18	12.2	123	4.44	109	<0.02	2.4	3.80	20.9	2.05	*9.75*	0.23	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	1/11/2016	SA_MW02	Normal	EP1610384	0.23	0.28	1.78	0.08	0.67	<0.02	<0.1	0.05	0.30	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	19/09/2017	SA_MW02	Normal	EP1710367	0.41	0.63	4.12	0.17	1.52	<0.02	<0.1	0.14	0.72	0.10	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	19/09/2017	WFD_LC_03	Field Duplicate	EP1710367	0.43	0.63	4.06	0.17	1.55	<0.02	<0.1	0.15	0.76	0.10	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	4.06	<0.05	<0.05	<0.05
	MW102	19/09/2017	WFS_LC_03	Interlab Duplicate	176252	1.1	1.2	4.0	0.14	1.1	<0.02	0.09	0.08	0.80	0.08	0.17	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01
	MW102	6/03/2019	0967_MW102_190306	Normal	EP1902092	0.24	0.29	1.74	0.08	0.71	<0.02	<0.1	0.07	0.39	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	6/03/2019	0967_QC105_190306	Field Duplicate	EP1902092	0.25	0.31	1.81	0.08	0.65	<0.02	<0.1	0.08	0.39	0.05	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	6/03/2019	0967_QC205_190306	Interlab Duplicate	223429	0.24	0.30	1.6	0.06	0.42	<0.02	0.03	0.06	0.36	0.04	0.07	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.02	<0.01	<0.01
Source Area A - FTA	MW102	29/10/2019	0967_MW102_191029	Normal	EP1911154	0.22	0.23	1.62	0.06	0.78	<0.02	<0.1	0.06	0.35	0.04	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	12/05/2020	0967_MW102_200512	Normal	EP2004835	0.47	0.62	3.27	0.14	0.69	<0.02	<0.1	0.14	0.72	0.09	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	13/10/2020	0967_MW102_201013	Normal	EP2011099	0.31	0.38	2.31	0.09	0.72	<0.02	<0.1	0.10	0.46	0.06	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	29/04/2021	0967_MW102_210429	Normal	EP2104725	0.45	0.53	3.50	0.12	0.83	<0.02	<0.1	0.13	0.78	0.09	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	20/09/2021	0967_MW102_210920	Normal	EP2111153	0.31	0.40	2.92	0.06	0.76	<0.02	<0.1	0.11	0.42	0.05	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	28/04/2022	0967_MW102_220428	Normal	EP2204974	0.46	0.46	3.31	0.11	1.45	<0.02	<0.1	0.12	0.66	0.07	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	26/09/2022	0967_MW102_220926	Normal	EP2212405	0.27	0.35	1.94	0.06	1.02	<0.02	<0.1	0.08	0.43	0.05	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW102	24/04/2023	0967_MW102_230424	Normal	EP2305259	0.39	0.41	2.33	0.08	0.46	<0.02	<0.1	0.11	0.53	0.06	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	2.33	<0.05	<0.05	<0.05
	MW102	25/09/2023	0967_MW102_230925	Normal	EP2313263	0.31	0.38	1.90	0.08	1.71	<0.02	0.1	0.09	0.58	0.06	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	1/11/2016	SB_MW03	Normal	EP1610384	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	18/09/2017	SB_MW03	Normal	EP1710286	0.03	0.05	0.20	<0.02	0.03	<0.02	<0.1	<0.02	0.08	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	5/03/2019	0967_MW103_190305	Normal	EP1902013	0.04	0.05	0.51	0.02	0.15	<0.02	<0.1	0.08	0.31	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	28/10/2019	0967_MW103_191028	Normal	EP1911089	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	12/05/2020	0967_MW103_200512	Normal	EP2004835	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area B - Former FTA	MW103	13/10/2020	0967_MW103_201013	Normal	EP2011099	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	29/04/2021	0967_MW103_210429	Normal	EP2104725	<0.02	<0.02	0.15	<0.02	0.13	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	20/09/2021	0967_MW103_210920	Normal	EP2111153	0.06	0.02	0.46	0.03	0.63	<0.02	<0.1	0.06	0.36	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	28/04/2022	0967_MW103_220428	Normal	EP2204974	<0.02	<0.02	0.07	<0.02	0.38	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	22/09/2022	0967_MW103_220922	Normal	EP2212309	0.07	0.04	0.81	0.05	0.53	<0.02	<0.1	<0.02	0.06	0.36	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	17/04/2023	0967_MW103_230417	Normal	EP2304861	<0.02	<0.02	0.08	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW103	25/09/2023	0967_MW103_230925	Normal	EP2313263	<0.02	<0.02	0.09	<0.02	0.10	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW104	28/09/2016	SB_MW04_1.0	Normal	EP1700173	0.05		0.82		66.4		<0.1	0.07	0.37	<0.02	0.11							<0.05	<0.05	<0.05	
	MW104	28/09/2016	SB_MW04_2.0	Normal	EP1700173	6

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*										
PFAS NEMP 2020 Recreational Water																**10**										
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
	MW105	13/08/2021	0967_MW105_210813	Normal	EP2109406	<0.02	<0.02	0.09	<0.02	0.04	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW105	20/09/2021	0967_MW105_210920	Normal	EP2111153	0.16	0.05	1.26	0.02	0.53	<0.02	<0.1	0.08	0.61	0.03	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW105	21/04/2022	0967_MW105_220421	Normal	EP2204666	<0.02	<0.02	0.34	<0.02	0.11	<0.02	<0.1	0.02	0.17	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW105	26/09/2022	0967_MW105_220926	Normal	EP2212405	0.10	0.11	2.61	0.05	0.91	<0.02	<0.1	0.13	0.83	0.06	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW105	12/04/2023	0967_MW105_230412	Normal	EP2304596	0.02	0.03	0.52	<0.02	0.12	<0.02	<0.1	0.03	0.20	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW105	25/09/2023	0967_MW105_230925	Normal	EP2313263	<0.02	<0.02	0.08	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	31/10/2016	SC_MW07	Normal	EP1610345	0.02	<0.02	0.14	<0.02	0.06	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	19/09/2017	SC_MW07	Normal	EP1710367	<0.02	<0.02	0.07	<0.02	0.08	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	5/03/2019	0967_MW107_190305	Normal	EP1902013	<0.02	<0.02	0.05	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.05	0.13	<0.05	<0.05
	MW107	5/03/2019	0967_QC101_190305	Field Duplicate	EP1902013	<0.02	<0.02	0.06	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.14	<0.05	<0.05
	MW107	5/03/2019	0967_QC201_190305	Interlab Duplicate	223346	<0.01	<0.01	0.04	<0.01	0.04	<0.02	<0.03	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.09	<0.01	<0.01
	MW107	29/10/2019	0967_MW107_191029	Normal	EP1911154	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area C – Hangar 93 and Foam Disposal Pit	MW107	12/05/2020	0967_MW107_200512	Normal	EP2004835	<0.02	<0.02	0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	13/10/2020	0967_MW107_201013	Normal	EP2011099	<0.02	<0.02	0.08	<0.02	0.12	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	29/04/2021	0967_MW107_210429	Normal	EP2104725	<0.02	<0.02	0.06	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	20/09/2021	0967_MW107_210920	Normal	EP2111153	<0.02	<0.02	0.04	<0.02	0.20	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	28/04/2022	0967_MW107_220428	Normal	EP2204974	<0.02	<0.02	0.03	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	26/09/2022	0967_MW107_220926	Normal	EP2212405	0.03	<0.02	0.06	<0.02	0.12	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	24/04/2023	0967_MW107_230424	Normal	EP2305259	<0.02	<0.02	0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW107	25/09/2023	0967_MW107_230925	Normal	EP2313263	<0.02	0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	31/10/2016	SC_MW09	Normal	EP1610345	0.04	0.04	0.49	<0.02	0.43	<0.02	<0.1	0.03	0.06	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	19/09/2017	SC_MW09	Normal	EP1710367	<0.02	0.03	0.18	<0.02	0.14	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	5/03/2019	0967_MW109_190305	Normal	EP1902013	<0.05	0.06	0.28	<0.05	0.28	<0.05	<0.2	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
Source Area C – Hangar 93 and Foam Disposal Pit	MW109	29/10/2019	0967_MW109_191029	Normal	EP1911154	0.03	0.03	0.31	<0.02	0.45	<0.02	<0.1	0.02	0.10	<0.02	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	12/05/2020	0967_MW109_200512	Normal	EP2004835	0.05	0.05	0.31	<0.02	0.10	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	13/10/2020	0967_MW109_201013	Normal	EP2011099	0.03	0.04	0.23	<0.02	0.09	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	29/04/2021	0967_MW109_210429	Normal	EP2104725	0.04	0.05	0.36	<0.02	0.15	<0.02	<0.1	0.03	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	20/09/2021	0967_MW109_210920	Normal	EP2111153	0.03	0.04	0.26	<0.02	0.16	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	28/04/2022	0967_MW109_220428	Normal	EP2204974	0.05	0.05	0.34	<0.02	0.26	<0.02	<0.1	0.03	0.10	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	26/09/2022	0967_MW109_220926	Normal	EP2212405	0.04	0.06	0.38	<0.02	0.17	<0.02	<0.1	<0.02	0.08	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	24/04/2023	0967_MW109_230424	Normal	EP2305259	0.06	0.06	0.34	<0.02	0.19	<0.02	<0.1	0.04	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW109	25/09/2023	0967_MW109_230925	Normal	EP2313263	0.04	0.06	0.40	<0.02	0.26	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	31/10/2016	SC_MW10	Normal	EP1610345	<0.02	<0.02	0.11	<0.02	0.07	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	20/09/2017	SC_MW10	Normal	EP1710407	<0.02	<0.02	0.13	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	5/03/2019	0967_MW110_190305	Normal	EP1902013	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
	MW110	29/10/2019	0967_MW110_191029	Normal	EP1911154	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
Source Area C – Hangar 93 and Foam Disposal Pit	MW110	12/05/2020	0967_MW110_200512	Normal	EP2004835	<0.02	<0.02	0.08	<0.02	0.04	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	13/10/2020	0967_MW110_201013	Normal	EP2011099	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	29/04/2021	0967_MW110_210429	Normal	EP2104725	<0.02	0.04	0.39	<0.02	0.41	<0.02	<0.1	0.02	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	20/09/2021	0967_MW110_210920	Normal	EP2111153	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	28/04/2022	0967_MW110_220428	Normal	EP2204974	<0.02	<0.02	0.02	<0.02	0.12	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.11	<0.05	<0.05	<0.05
	MW110	26/09/2022	0967_MW110_220926	Normal	EP2212405	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	24/04/2023	0967_MW110_230424	Normal	EP2305259	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW110	25/09/2023	0967_MW110_230925	Normal	EP2313263	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	1/11/2016	SD_MW12	Normal	EP1610384	0.04	0.04	0.26	0.02	0.47	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	28/09/2017	SD_MW12	Normal	EP1710821	<0.02	<0.02	0.12	<0.02	0.27	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	6/03/2019	0967_MW112_190306	Normal	EP1902092	<0.02	<0.02	0.17	<0.02	0.78	<0.02	<0.1	<0.02	0.04	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	23/10/2019	0967_MW112_191023	Normal	EP1910899	<0.02	<0.02	0.15	<0.02	0.40	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	4/05/2020	0967_MW112_200504	Normal	EP2004451	<0.02	<0.02	0.14	<0.02	0.37	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	12/10/2020	0967_MW112_201012	Normal	EP2011008	0.03	<0.02	0.26	<0.02	0.46	<0.02	<0.1	<0.02	0.06	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	20/04/2021	0967_MW112_210420	Normal	EP2104293	0.06	0.05	0.60	0.03	0.88	<0.02	<0.1	0.03	0.14	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area D - Grounds Maintenance Area	MW112	8/09/2021	0967_MW112_210908	Normal	EP2110530	0.04	0.04	0.44	0.03	0.68	<0.02	<0.1	0.02	0.12	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	8/09/2021	0967_QC112_210908	Field Duplicate	EP2110530	0.04	0.04	0.52	0.03	0.70	<0.02	<0.1	0.02	0.13	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	8/09/2021	0967_QC212_210908	Interlab Duplicate	823602	0.04	0.03	0.59	0.04	0.76	<0.01	<0.05	0.03	0.13	0.02	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW112	19/04/2022	0967_MW112_220419	Normal	EP2204502	<0.02	<0.02	0.16	<0.02	0.28	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	22/09/2022	0967_MW112_220922	Normal	EP2212309	<0.02	<0.02	0.14	<0.02	0.31	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	12/04/2023	0967_MW112_230412	Normal	EP2304630	<0.02	<0.02	0.08	<0.02	0.21	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	13/09/2023	0967_MW112_230913	Normal	EP2312633	<0.02	<0.02	0.06	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	13/09/2023	0967_QC107_230913	Field Duplicate	EP2312633	<0.02	<0.02	0.06	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW112	13/09/2023	0967_QC207_230913	Interlab Duplicate	1026632	<0.01	<0.01	0.05	<0.01	0.15	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW113	1/11/2016	SD_MW13	Normal	EP1610384	0.10	0.08	0.64	0.02	0.62	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	28/09/2017	SD_MW13	Normal	EP1710821	0.10	0.08	0.70	0.03	0.50	<0.02	<0.1	<0.02	0.12	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	23/10/2019	0967_MW113_191023	Normal	EP1910900	0.04	0.04	0.27	<0.02	0.20	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	4/05/2020	0967_MW113_200504	Normal	EP2004451	0.05	0.04	0.30	<0.02	0.23	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	12/10/2020	0967_MW113_201012	Normal	EP2011008	0.06	0.05	0.41	<0.02	0.27	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.41	<0.05	<0.05	<0.05
	MW113	20/04/2021	0967_MW113_210420	Normal	EP2104293	0.05	0.04	0.34	<0.02	0.22	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	20/04/2021	0967_QC110_210420	Field Duplicate	EP2104293	0.05	0.05	0.38	<0.02	0.24	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area D - Grounds Maintenance Area	MW113	20/04/2021	0967_QC210_210420	Interlab Duplicate	789529	0.04	0.04	0.28	0.01	0.24	<0.01	<0.05	0.02	0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW113	20/09/2021	0967_MW113_210920	Normal	EP2111153	0.05	0.05	0.39	<0.02	0.32	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	19/04/2022	0967_MW113_220419	Normal	EP2204502	0.05	0.06	0.38	<0.02	0.21	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	22/09/2022	0967_MW113_220922	Normal	EP2212309	0.07	0.09	0.58	<0.02	0.38	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	12/04/2023	0967_MW113_230412	Normal	EP2304630	0.06	0.07	0.36	<0.02	0.24	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.12	<0.05	<0.05
	MW113	12/04/2023	0967_QC115_230412	Field Duplicate	EP2304630	0.09	0.07	0.34	<0.02	0.24	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.12	<0.05	<0.05
	MW113	12/04/2023	0967_QC215_230412	Interlab Duplicate	982488	0.04	0.05	0.31	0.01	0.20	<0.01	<0.05	0.01	0.04	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.10	<0.01	<0.01
	MW113	13/09/2023	0967_MW113_230913	Normal	EP2312633	0.05	0.05	0.31	<0.02	0.19	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	13/09/2023	0967_QC108_230913	Field Duplicate	EP2312633	0.05	0.05	0.30	<0.02	0.18	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW113	13/09/2023	0967_QC208_230913	Interlab Duplicate	1026632	0.04	0.04	0.28	0.01	0.21	<0.01	<0.05	0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW114	7/12/2016	BW_MW14	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	28/09/2017	BW_MW14	Normal	EP1710821	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	7/03/2019	0967_MW114_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	7/11/2019	0967_MW114_191107	Normal	EP1911621	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	7/11/2019	0967_QC101_191107	Field Duplicate	EP1911621	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW114	7/11/2019	0967_QC201_20191107	Interlab Duplicate	687280	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	MW114	6/05/2020	0967_MW114_200506	Normal	EP2004590	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	13/10/2020	0967_MW114_201013	Normal	EP2011100	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	19/04/2021	0967_MW114_210419	Normal	EP2104217	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	19/04/2021	0967_QC104_210419	Field Duplicate	EP2104217	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	10/09/2021	0967_MW114_210910	Normal	EP2110631	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW114	19/04/2022	0967_MW114_220419	Normal	EP2204502	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*										
PFAS NEMP 2020 Recreational Water																**10**										
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
	MW116	8/09/2021	0967_QC109_210908	Field Duplicate	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW116	8/09/2021	0967_QC209_210908	Interlab Duplicate	823602	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW116	19/04/2022	0967_MW116_220419	Normal	EP2204502	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW116	22/09/2022	0967_MW116_220922	Normal	EP2212309	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW116	12/04/2023	0967_MW116_230412	Normal	EP2304630	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW116	13/09/2023	0967_MW116_230913	Normal	EP2312633	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	7/12/2016	BW_MW17	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	18/09/2017	BW_MW17	Normal	EP1710286	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	6/03/2019	0967_MW117_190306	Normal	EP1902092	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	6/03/2019	0967_QC106_190306	Field Duplicate	EP1902092	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	29/10/2019	0967_MW117_191029	Normal	EP1911158	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	4/05/2020	0967_MW117_200504	Normal	EP2004452	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW117	12/10/2020	0967_MW117_201012	Normal	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	12/10/2020	0967_QC101_201012	Field Duplicate	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	12/10/2020	0967_QC201_201012	Interlab Duplicate	750345	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW117	7/09/2021	0967_MW117_210907	Normal	EP2110443	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	19/04/2022	0967_MW117_220419	Normal	EP2204499	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	19/09/2022	0967_MW117_220919	Normal	EP2212078	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	17/04/2023	0967_MW117_230417	Normal	EP2304861	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW117	11/09/2023	0967_MW117_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	7/12/2016	BW_MW18	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	18/09/2017	BW_MW18	Normal	EP1710286	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	5/03/2019	0967_MW118_190305	Normal	EP1902013	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	0.4	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	30/10/2019	0967_MW118_191030	Normal	EP1911185	<0.02	<0.02	0.08	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	30/10/2019	0967_QC101_191030	Field Duplicate	EP1911185	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	30/10/2019	0967_QC201_191030	Interlab Duplicate	685952	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW118	4/05/2020	0967_MW118_200504	Normal	EP2004452	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	12/10/2020	0967_MW118_201012	Normal	EP2011008	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	12/10/2020	0967_QC102_201012	Field Duplicate	EP2011008	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	12/10/2020	0967_QC202_201012	Interlab Duplicate	750345	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW118	19/04/2021	0967_MW118_210419	Normal	EP2104219	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW118	13/08/2021	0967_MW118_210813	Normal	EP2109406	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	7/09/2021	0967_MW118_210907	Normal	EP2110443	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.05	<0.05
	MW118	7/09/2021	0967_QC107_210907	Field Duplicate	EP2110443	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	7/09/2021	0967_QC207_210907	Interlab Duplicate	823604	<0.01	<0.01	0.08	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW118	19/04/2022	0967_MW118_220419	Normal	EP2204499	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	19/04/2022	0967_QC101_220419	Field Duplicate	EP2204499	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	19/04/2022	0967_QC201_220419	Interlab Duplicate	882564	0.02	<0.02	0.05	<0.01	0.07	<0.01	0.08	0.04	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW118	19/09/2022	0967_MW118_220919	Normal	EP2212078	<0.02	0.02	0.22	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.21	<0.05	<0.05	<0.05
	MW118	12/04/2023	0967_MW118_230412	Normal	EP2304596	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	12/04/2023	0967_QC108_230412	Field Duplicate	EP2304596	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW118	12/04/2023	0967_QC208_230412	Interlab Duplicate	982488	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW118	11/09/2023	0967_MW118_230911	Normal	EP2312521	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	7/12/2016	BW_MW19	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	18/09/2017	BW_MW19	Normal	EP1710286	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	5/03/2019	0967_MW119_190305	Normal	EP1902013	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.55	<0.05	<0.05	<0.05
	MW119	29/10/2019	0967_MW119_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	4/05/2020	0967_MW119_200504	Normal	EP2004451	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	4/05/2020	0967_QC102_200504	Field Duplicate	EP2004451	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	4/05/2020	0967_QC202_200504	Interlab Duplicate	717417	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW119	12/10/2020	0967_MW119_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	19/04/2021	0967_MW119_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW119	7/09/2021	0967_MW119_210907	Normal	EP2110443	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	19/04/2022	0967_MW119_220419	Normal	EP2204499	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	19/09/2022	0967_MW119_220919	Normal	EP2212078	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	17/04/2023	0967_MW119_230417	Normal	EP2304861	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	11/09/2023	0967_MW119_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	11/09/2023	0967_QC104_230911	Field Duplicate	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW119	11/09/2023	0967_QC204_230911	Interlab Duplicate	1026632	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW120	7/12/2016	BW_MW20	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	18/09/2017	BW_MW20	Normal	EP1710286	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	6/03/2019	0967_MW120_190306	Normal	EP1902092	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	29/10/2019	0967_MW120_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	5/05/2020	0967_MW120_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	5/05/2020	0967_QC101_200505	Field Duplicate	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW120	5/05/2020	0967_QC201_200505	Interlab Duplicate	717772	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW120	12/10/2020	0967_MW120_201012	Normal	EP2011007	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	19/04/2021	0967_MW120_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	8/09/2021	0967_MW120_210908	Normal	EP2110524	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	20/04/2022	0967_MW120_220420	Normal	EP2204593	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	20/09/2022	0967_MW120_220920	Normal	EP2212153	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.04	<0.05	<0.05	<0.05
	MW120	12/04/2023	0967_MW120_230412	Normal	EP2304605	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW120	11/09/2023	0967_MW120_230911	Normal	EP2312521	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	7/12/2016	BW_MW21	Normal	EP1611847	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	18/09/2017	BW_MW21	Normal	EP1710286	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	5/03/2019	0967_MW121_190305	Normal	EP1902013	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	29/10/2019	0967_MW121_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	3/06/2020	0967_MW121_200603	Normal	EP2005736	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW121	12/10/2020	0967_MW121_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	19/04/2021	0967_MW121_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	8/09/2021	0967_MW121_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	19/04/2022	0967_MW121_220419	Normal	EP2204499	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	20/09/2022	0967_MW121_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	12/04/2023	0967_MW121_230412	Normal	EP2304596	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW121	11/09/2023	0967_MW121_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW122D	4/10/2017	BW_MW22D	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW122D	7/03/2019	0967_MW122D_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW122D	30/10/2019	0967_MW122D_191030	Normal	EP1911183	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW122D	13/05/2020	0967_MW122D_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*									
PFAS NEMP 2020 Recreational Water																**10**									
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
On-site - Other	MW123D	30/10/2019	0967_QC202_191030	Interlab Duplicate	685952	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW123D	13/05/2020	0967_MW123D_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	22/10/2020	0967_MW123D_201022	Normal	EP2011562	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	19/04/2021	0967_MW123D_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	8/09/2021	0967_MW123D_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	8/09/2021	0967_QC113_210908	Field Duplicate	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	8/09/2021	0967_QC213_210908	Interlab Duplicate	823602	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW123D	20/04/2022	0967_MW123D_220420	Normal	EP2204593	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	20/04/2022	0967_QC107_220420	Field Duplicate	EP2204593	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.03	<0.05	<0.05
	MW123D	20/04/2022	0967_QC207_220420	Interlab Duplicate	882820	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW123D	20/09/2022	0967_MW123D_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	12/04/2023	0967_MW123D_230412	Normal	EP2304605	<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123D	13/09/2023	0967_MW123D_230913	Normal	EP2312633	0.04	0.03	0.26	<0.02	0.20	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
On-site - Other	MW123S	4/10/2017	BW_MW23S	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	13/03/2018	BW_MW23S	Normal	EP1803515	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	7/03/2019	0967_MW123S_190307	Normal	EP1902154	<0.02	<0.02	0.18	<0.02	0.30	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	30/10/2019	0967_MW123S_191030	Normal	EP1911186	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	30/10/2019	0967_QC105_191030	Field Duplicate	EP1911186	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	30/10/2019	0967_QC205_191030	Interlab Duplicate	685952	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW123S	13/05/2020	0967_MW123S_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	13/05/2020	0967_QC101_200513	Field Duplicate	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	13/05/2020	0967_QC201_200513	Interlab Duplicate	719471	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW123S	22/10/2020	0967_MW123S_201022	Normal	EP2011562	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	19/04/2021	0967_MW123S_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	8/09/2021	0967_MW123S_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	20/04/2022	0967_MW123S_220420	Normal	EP2204593	<0.02	<0.02	0.03	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	20/09/2022	0967_MW123S_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	12/04/2023	0967_MW123S_230412	Normal	EP2304605	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW123S	13/09/2023	0967_MW123S_230913	Normal	EP2312633	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
On-site - Other	MW124D	4/10/2017	BW_MW24D	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	7/03/2019	0967_MW124D_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	29/10/2019	0967_MW124D_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	5/05/2020	0967_MW124D_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	5/05/2020	0967_QC102_200505	Field Duplicate	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	5/05/2020	0967_QC202_200505	Interlab Duplicate	717772	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01
	MW124D	12/10/2020	0967_MW124D_201012	Normal	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	20/04/2021	0967_MW124D_210420	Normal	EP2104293	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	9/09/2021	0967_MW124D_210909	Normal	EP2110593	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	21/04/2022	0967_MW124D_220421	Normal	EP2204666	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	20/09/2022	0967_MW124D_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	12/04/2023	0967_MW124D_230412	Normal	EP2304596	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124D	19/09/2023	0967_MW124D_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
On-site - Other	MW124S	4/10/2017	BW_MW24S	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	7/03/2019	0967_MW124S_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	29/10/2019	0967_MW124S_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	5/05/2020	0967_MW124S_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	12/10/2020	0967_MW124S_201012	Normal	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	12/10/2020	0967_QC109_201012	Field Duplicate	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	12/10/2020	0967_QC209_201012	Interlab Duplicate	750345	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01
	MW124S	20/04/2021	0967_MW124S_210420	Normal	EP2104293	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	20/04/2021	0967_QC109_210420	Field Duplicate	EP2104293	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	20/04/2021	0967_QC209_210420	Interlab Duplicate	789529	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01
	MW124S	9/09/2021	0967_MW124S_210909	Normal	EP2110593	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	21/04/2022	0967_MW124S_220421	Normal	EP2204666	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	20/09/2022	0967_MW124S_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	12/04/2023	0967_MW124S_230412	Normal	EP2304596	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW124S	19/09/2023	0967_MW124S_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
Off-site	MW125D	10/10/2017	WB_MW25D	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	11/03/2019	0967_MW125D_190311	Normal	EP1902248	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05
	MW125D	19/11/2019	0967_MW125D_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	13/05/2020	0967_MW125D_200513	Normal	EP2004873	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	14/10/2020	0967_MW125D_201014	Normal	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	14/10/2020	0967_QC104_201014	Field Duplicate	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	14/10/2020	0967_QC204_201014	Interlab Duplicate	751051	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01
	MW125D	21/04/2021	0967_MW125D_210421	Normal	EP2104360	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	6/09/2021	0967_MW125D_210906	Normal	EP2110384	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	20/04/2022	0967_MW125D_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	21/09/2022	0967_MW125D_220921	Normal	EP2212260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	13/04/2023	0967_MW125D_230413	Normal	EP2304669	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125D	14/09/2023	0967_MW125D_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
Off-site	MW125S	10/10/2017	WB_MW25S	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	11/03/2019	0967_MW125S_190311	Normal	EP1902248	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05
	MW125S	19/11/2019	0967_MW125S_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	13/05/2020	0967_MW125S_200513	Normal	EP2004873	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	14/10/2020	0967_MW125S_201014	Normal	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	21/04/2021	0967_MW125S_210421	Normal	EP2104360	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	6/09/2021	0967_MW125S_210906	Normal	EP2110384	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	20/04/2022	0967_MW125S_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	21/09/2022	0967_MW125S_220921	Normal	EP2212260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	13/04/2023	0967_MW125S_230413	Normal	EP2304669	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW125S	14/09/2023	0967_MW125S_230914	Normal	EP2312710	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
Off-site	MW126	10/10/2017	WB_MW26	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW126	11/03/2019	0967_MW126_190311	Normal	EP1902248	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW126	19/11/2019	0967_MW126_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW126	13/05/2020	0967_MW126_200513	Normal	EP2004873	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW126	13/05/2020	0967_QC102_200513	Field Duplicate	EP2004873	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.09	<0.05	<0.05
	MW126	13/05/2020	0967_QC202_200513	Interlab Duplicate	719471	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW126	14/10/2020	0967_MW126_201014	Normal	EP2011182	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05
	MW126	21/04/2021	0967_MW126_210421	Normal	EP2104360	<0.02	<0.02	<0.02

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*										
PFAS NEMP 2020 Recreational Water																**10**										
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
	MW128S	21/09/2022	0967_MW128S_220921	Normal	EP2212260	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW128S	12/04/2023	0967_MW128S_230412	Normal	EP2304609	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW128S	15/09/2023	0967_MW128S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	10/10/2017	WB_MW29D	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	11/03/2019	0967_MW129D_190311	Normal	EP1902248	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	19/11/2019	0967_MW129D_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	13/05/2020	0967_MW129D_200513	Normal	EP2004881	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05
Off-site	MW129D	21/04/2021	0967_MW129D_210421	Normal	EP2104361	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	9/09/2021	0967_MW129D_210909	Normal	EP2110593	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	20/04/2022	0967_MW129D_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	23/09/2022	0967_MW129D_220923	Normal	EP2212362	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	12/04/2023	0967_MW129D_230412	Normal	EP2304609	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129D	15/09/2023	0967_MW129D_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	10/10/2017	WB_MW29S	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	11/03/2019	0967_MW129S_190311	Normal	EP1902248	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.39	<0.05	<0.05	<0.05
	MW129S	19/11/2019	0967_MW129S_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	13/05/2020	0967_MW129S_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	14/10/2020	0967_MW129S_201014	Normal	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site	MW129S	21/04/2021	0967_MW129S_210421	Normal	EP2104361	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	9/09/2021	0967_MW129S_210909	Normal	EP2110593	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	20/04/2022	0967_MW129S_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	23/09/2022	0967_MW129S_220923	Normal	EP2212362	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	12/04/2023	0967_MW129S_230412	Normal	EP2304609	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW129S	15/09/2023	0967_MW129S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	11/10/2017	WB_MW30D	Normal	EP1711448	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	11/03/2019	0967_MW130D_190311	Normal	EP1902248	<0.02	<0.02	<0.02	<0.02	0.14	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	19/11/2019	0967_M130D_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	13/05/2020	0967_MW130D_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	14/10/2020	0967_MW130D_201014	Normal	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site	MW130D	21/04/2021	0967_MW130D_210421	Normal	EP2104360	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	7/09/2021	0967_MW130D_210907	Normal	EP2110446	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	20/04/2022	0967_MW130D_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	23/09/2022	0967_MW130D_220923	Normal	EP2212362	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	12/04/2023	0967_MW130D_230412	Normal	EP2304609	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130D	15/09/2023	0967_MW130D_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	11/10/2017	WB_MW30S	Normal	EP1711448	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	13/03/2018	WB_MW30S	Normal	EP1803515	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	11/03/2019	0967_MW130S_190311	Normal	EP1902248	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	19/11/2019	0967_MW130S_191119	Normal	EP1912128	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	13/05/2020	0967_MW130S_200513	Normal	EP2004873	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Off-site	MW130S	14/10/2020	0967_MW130S_201014	Normal	EP2011175	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	21/04/2021	0967_MW130S_210421	Normal	EP2104360	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	7/09/2021	0967_MW130S_210907	Normal	EP2110446	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	20/04/2022	0967_MW130S_220420	Normal	EP2204597	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	23/09/2022	0967_MW130S_220923	Normal	EP2212362	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	12/04/2023	0967_MW130S_230412	Normal	EP2304609	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW130S	15/09/2023	0967_MW130S_230915	Normal	EP2312799	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	5/10/2017	PG_MW32D	Normal	EP1711134	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	5/10/2017	PG_MW32D	Normal	EP1711134																					
	MW132D	7/03/2019	0967_MW132D_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	7/03/2019	0967_QC107_190307	Field Duplicate	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	7/03/2019	0967_QC207_190307	Interlab Duplicate	223470	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01
	MW132D	29/10/2019	0967_MW132D_191029	Normal	EP1911154	0.03	<0.02	0.12	<0.02	0.02	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW132D	12/05/2020	0967_MW132_D_200512	Normal	EP2004835	0.32	0.22	0.92	<0.02	0.29	<0.02	0.1	0.15	0.55	0.05	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.13	<0.05	<0.05	<0.05
	MW132D	13/10/2020	0967_MW132D_201013	Normal	EP2011099	0.10	0.09	0.42	<0.02	0.05	<0.02	<0.1	0.05	0.18	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	29/04/2021	0967_MW132D_210429	Normal	EP2104725	0.19	0.15	1.07	0.02	0.06	<0.02	<0.1	0.09	0.38	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	20/09/2021	0967_MW132D_210920	Normal	EP2111153	0.48	0.36	2.20	0.06	0.81	<0.02	0.2	0.19	0.67	0.07	0.13	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132D	28/04/2022	0967_MW132D_220428	Normal	EP2204974	0.53	0.38	1.99	0.04	0.28	<0.02	0.1	0.20	0.68	0.08	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.07	<0.05	<0.05	<0.05
	MW132D	26/09/2022	0967_MW132D_220926	Normal	EP2212405	0.81	0.78	4.54	0.12	0.50	<0.02	0.3	0.33	1.36	0.15	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.07	<0.05	<0.05	<0.05
	MW132D	24/04/2023	0967_MW132D_230424	Normal	EP2305259	0.69	0.63	3.55	0.10	0.33	<0.02	0.2	0.25	1.04	0.12	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.05	<0.05
	MW132D	25/09/2023	0967_MW132D_230925	Normal	EP2313263	0.76	0.65	4.18	0.13	0.33	<0.02	0.3	0.24	1.23	0.15	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	5/10/2017	PG_MW32S	Normal	EP1711134	0.05	0.05	0.3	<0.02	0.04	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	5/10/2017	WFD_OS_07	Field Duplicate	EP1711134	0.03	0.05	0.3	<0.02	0.02	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	5/10/2017	WFS_OS_07	Interlab Duplicate	177339	0.05	0.06	0.3	0.01	0.02	<0.02	<0.02	<0.02	0.06	<0.01	0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01
	MW132S	7/03/2019	0967_MW132S_190307	Normal	EP1902154	0.03	0.03	0.17	<0.02	0.03	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	29/10/2019	0967_MW132S_191029	Normal	EP1911154	0.04	0.04	0.40	<0.02	0.49	<0.02	<0.1	<0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	12/05/2020	0967_MW132_S_200512	Normal	EP2004835	0.05	0.06	0.31	<0.02	0.17	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW132S	13/10/2020	0967_MW132S_201013	Normal	EP2011099	0.05	0.04	0.28	<0.02	0.76	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	29/04/2021	0967_MW132S_210429	Normal	EP2104725	0.08	0.05	0.30	<0.02	0.05	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	20/09/2021	0967_MW132S_210920	Normal	EP2111153	0.06	0.04	0.34	<0.02	0.11	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	28/04/2022	0967_MW132S_220428	Normal	EP2204974	0.05	0.05	0.26	<0.02	0.08	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	26/09/2022	0967_MW132S_220926	Normal	EP2212405	0.06	0.07	0.52	0.03	0.28	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	24/04/2023	0967_MW132S_230424	Normal	EP2305259	0.09	0.08	0.54	<0.02	0.16	<0.02	<0.1	<0.02	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW132S	25/09/2023	0967_MW132S_230925	Normal	EP2313263	0.07	0.08	0.43	0.02	0.11	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	5/10/2017	PG_MW34D	Normal	EP1711134	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	5/10/2017	PG_MW34D	Normal	EP1711134																					
	MW134D	7/03/2019	0967_MW134D_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	29/10/2019	0967_MW134D_191029	Normal	EP1911154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	12/05/2020	0967_MW134_D_200512	Normal	EP2004835	<0.02	<0.02	<0.02	<0.02	0.21	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW134D	13/10/2020	0967_MW134D_201013	Normal	EP2011099	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	29/04/2021	0967_MW134D_210429	Normal	EP2104725	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.10	<0.05	<0.05
	MW134D	20/09/2021	0967_MW134D_210920	Normal	EP2111153	<0.02	<0.02	0.02	<0.02	0.12	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.05	<0.05	<0.05
	MW134D	28/04/2022	0967_MW134D_220428	Normal	EP2204974	<0.02	<0.02	0.02	<0.02	0.15	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.06	<0.05	<0.05	<0.05
	MW134D	26/09/2022	0967_MW134D_220926	Normal	EP2212405	<0.02	<0.02	0.02	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.06	<0.05	<0.05
	MW134D	24/04/2023	0967_MW134D_230424	Normal	EP2305259	<0.02	<0.02	<0.01	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134D	25/09/2023	0967_MW134D_230925	Normal	EP2313263	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134S	5/10/2017	PG_MW34S	Normal	EP1711134	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134S	5/10/2017	WFD_OS_08	Field Duplicate	EP1711134	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW134S	5/10/2017	WFS_OS_08	Interlab Duplicate	177339	0.01	0.01	0.05	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01
	MW134S	7/03/2019	0967_MW134S_190307	Normal	EP1902154	0.03	0.03	0.11	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.11	<0.05	<0.05	<0.05
	MW134S	29/10/2019	0967_MW134S_191029	Normal	EP1911154

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*										
PFAS NEMP 2020 Recreational Water																**10**										
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
Off-site	MW137	22/10/2019	0967_MW137_191022	Normal	EP1910814	0.16	0.03	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	6/05/2020	0967_MW137_200506	Normal	EP2004593	0.07	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	6/05/2020	0967_QC101_200506	Field Duplicate	EP2004593	0.10	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	6/05/2020	0967_QC201_200506	Interlab Duplicate	718239	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW137	14/10/2020	0967_MW137_201014	Normal	EP2011175	0.21	0.03	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	21/04/2021	0967_MW137_210421	Normal	EP2104360	0.12	0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	6/09/2021	0967_MW137_210906	Normal	EP2110384	0.04	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	19/04/2022	0967_MW137_220419	Normal	EP2204502	0.05	<0.02	0.05	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	21/09/2022	0967_MW137_220921	Normal	EP2212236	0.08	0.03	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	11/04/2023	0967_MW137_230411	Normal	EP2304520	0.17	0.08	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	11/04/2023	0967_QC101_230411	Field Duplicate	EP2304520	0.16	0.08	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW137	11/04/2023	0967_QC201_230411	Interlab Duplicate	982488	0.10	0.04	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW137	14/09/2023	0967_MW137_230914	Normal	EP2312710	0.13	0.05	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW138	5/10/2017	GM_MW38	Normal	EP1711134	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	5/10/2017	GM_MW38	Normal	EP1711134																					
	MW138	5/03/2019	0967_MW138_190305	Normal	EP1902013	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	29/10/2019	0967_MW138_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	5/05/2020	0967_MW138_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	12/10/2020	0967_MW138_201012	Normal	EP2011007	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	19/04/2021	0967_MW138_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	8/09/2021	0967_MW138_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	20/04/2022	0967_MW138_220420	Normal	EP2204593	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	20/09/2022	0967_MW138_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	20/09/2022	0967_QC112_220920	Field Duplicate	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	20/09/2022	0967_QC212_220920	Interlab Duplicate	926012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW138	12/04/2023	0967_MW138_230412	Normal	EP2304605	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	11/09/2023	0967_MW138_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	11/09/2023	0967_QC105_230911	Field Duplicate	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW138	11/09/2023	0967_QC205_230911	Interlab Duplicate	1026632	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW139	5/10/2017	GM_MW39	Normal	EP1711134	0.7	0.58	2.27	0.02	<0.01	<0.02	<0.1	0.1	0.25	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	5/03/2019	0967_MW139_190305	Normal	EP1902013	0.04	0.03	0.15	<0.02	<0.01	<0.02	0.2	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	30/10/2019	0967_MW139_191030	Normal	EP1911185	2.26	1.45	8.26	0.06	0.07	<0.02	<0.1	0.17	1.03	0.06	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	30/10/2019	0967_QC103_191030	Field Duplicate	EP1911185	2.34	1.50	8.09	0.06	0.08	<0.02	<0.1	0.18	1.03	0.06	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	30/10/2019	0967_QC203_191030	Interlab Duplicate	685952	1.6	1.3	6.2	0.11	0.09	<0.01	0.10	0.12	0.93	0.06	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW139	5/05/2020	0967_MW139_200505	Normal	EP2004508	0.07	0.07	0.28	<0.02	0.02	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	13/10/2020	0967_MW139_201013	Normal	EP2011047	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	19/04/2021	0967_MW139_210419	Normal	EP2104219	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	19/04/2021	0967_QC102_210419	Field Duplicate	EP2104219	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	7/09/2021	0967_MW139_210907	Normal	EP2110443	2.36	1.84	9.22	0.11	0.18	<0.02	0.2	0.26	1.22	0.10	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	19/04/2022	0967_MW139_220419	Normal	EP2204499	0.06	0.04	0.25	<0.02	0.02	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	20/09/2022	0967_MW139_220920	Normal	EP2212153	2.55	2.11	11.7	0.13	0.23	<0.02	0.2	0.37	1.60	0.12	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	12/04/2023	0967_MW139_230412	Normal	EP2304596	0.04	0.04	0.16	<0.02	<0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	12/04/2023	0967_QC110_230412	Field Duplicate	EP2304596	0.05	0.04	0.20	<0.02	<0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW139	12/04/2023	0967_QC210_230412	Interlab Duplicate	982488	0.04	0.03	0.18	<0.01	<0.01	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW139	11/09/2023	0967_MW139_230911	Normal	EP2312521	0.03	0.02	0.14	<0.02	<0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	4/10/2017	GM_MW40D	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	7/03/2019	0967_MW140D_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	29/10/2019	0967_MW140D_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	5/05/2020	0967_MW140D_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	12/10/2020	0967_MW140D_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	19/04/2021	0967_MW140D_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	8/09/2021	0967_MW140D_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	8/09/2021	0967_QC111_210908	Field Duplicate	EP2110524	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	8/09/2021	0967_QC211_210908	Interlab Duplicate	823602	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW140D	19/04/2022	0967_MW140D_220419	Normal	EP2204499	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	20/09/2022	0967_MW140D_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	12/04/2023	0967_MW140D_230412	Normal	EP2304596	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140D	11/09/2023	0967_MW140D_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	4/10/2017	GM_MW40S	Normal	EP1711139	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	7/03/2019	0967_MW140S_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	29/10/2019	0967_MW140S_191029	Normal	EP1911153	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	5/05/2020	0967_MW140S_200505	Normal	EP2004508	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	12/10/2020	0967_MW140S_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	19/04/2021	0967_MW140S_210419	Normal	EP2104219	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	8/09/2021	0967_MW140S_210908	Normal	EP2110524	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	19/04/2022	0967_MW140S_220419	Normal	EP2204499	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	20/09/2022	0967_MW140S_220920	Normal	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	20/09/2022	0967_QC111_220920	Field Duplicate	EP2212153	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	20/09/2022	0967_QC211_220920	Interlab Duplicate	926012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW140S	12/04/2023	0967_MW140S_230412	Normal	EP2304596	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW140S	11/09/2023	0967_MW140S_230911	Normal	EP2312521	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW146	10/10/2017	SN_MW46	Normal	EP1711281	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	7/03/2019	0967_MW146_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	23/10/2019	0967_MW146_191023	Normal	EP1910899	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	4/05/2020	0967_MW146_200504	Normal	EP2004451	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	12/10/2020	0967_MW146_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	19/04/2021	0967_MW146_210419	Normal	EP2104217	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	8/09/2021	0967_MW146_210908	Normal	EP2110530	<0.02	<0.02	<0.02	0.08	<0.02	<0.01	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	19/04/2022	0967_MW146_220419	Normal	EP2204502	<0.02	<0.02	0.11	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	22/09/2022	0967_MW146_220922	Normal	EP2212309	<0.02	<0.02	0.24	0.08	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	12/04/2023	0967_MW146_230412	Normal	EP2304630	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	13/09/2023	0967_MW146_230913	Normal	EP2312633	<0.02	<0.02	0.08	0.04	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	13/09/2023	0967_QC109_230913	Field Duplicate	EP2312633	<0.02	<0.02	0.10	0.05	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW146	13/09/2023	0967_QC209_230913	Interlab Duplicate	1026632	<0.01	<0.01	0.06	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01
	MW149	10/10/2017	SS_MW49	Normal	EP1711281	<0.02	<0.02	0.05	<0.02	0.39	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW149	6/03/2019	0967_MW149_190306	Normal	EP1902092	0.04	0.07	0.76	0.10	12.5	<0.02	<0.1	0.02	0.09	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW149	29/10/2019	0967_MW149_191029	Normal	EP1911158	<0.02	<0.02	<0.02	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW149	4/05/2020	0967_MW149_200504	Normal	EP2004451	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW149	12/10/2020	0967_MW149_201012	Normal	EP2011008	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW149	20/04/2021	0967_MW149_210420	Normal	EP2104293	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02

Table 1 Groundwater analytical results

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water																*0.56*										
PFAS NEMP 2020 Recreational Water																**10**										
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
On-site - Other	MW150	4/05/2020	0967_MW150_200504	Normal	EP2004451	0.15	0.21	1.53	0.09	0.92	<0.02	<0.1	0.04	0.24	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	12/10/2020	0967_MW150_201012	Normal	EP2011007	0.13	0.14	1.37	0.06	0.76	<0.02	<0.1	0.04	0.21	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	20/04/2021	0967_MW150_210420	Normal	EP2104293	0.16	0.21	1.82	0.09	0.96	<0.02	<0.1	0.05	0.26	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	7/09/2021	0967_MW150_210907	Normal	EP2110443	0.17	0.15	1.24	0.07	0.93	<0.02	<0.1	0.04	0.22	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	20/04/2022	0967_MW150_220420	Normal	EP2204593	0.13	0.15	1.36	0.08	1.00	<0.02	<0.1	0.04	0.21	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	19/09/2022	0967_MW150_220919	Normal	EP2212078	0.15	0.21	1.83	0.09	1.29	<0.02	<0.1	0.04	0.24	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	19/09/2022	0967_QC109_220919	Field Duplicate	EP2212078	0.16	0.23	2.01	0.10	1.42	<0.02	<0.1	0.05	0.28	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	19/09/2022	0967_QC209_220919	Interlab Duplicate	926012	0.12	0.14	1.3	0.07	1.0	<0.01	<0.05	0.04	0.16	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	MW150	17/04/2023	0967_MW150_230417	Normal	EP2304861	0.13	0.16	1.21	0.07	1.00	<0.02	<0.1	0.03	0.18	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW150	13/09/2023	0967_MW150_230913	Normal	EP2312633	0.14	0.16	1.29	0.07	0.96	<0.02	<0.1	0.03	0.22	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area J - Former Fuel Farm	MW155S	13/10/2020	0967_MW155S_201013	Normal	EP2011099	0.28	0.32	2.00	0.03	0.23	<0.02	<0.1	0.12	0.51	0.05	0.04	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	29/04/2021	0967_MW155S_210429	Normal	EP2104725	0.38	0.36	2.71	0.04	0.45	<0.02	<0.1	0.14	0.80	0.06	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	20/09/2021	0967_MW155S_210920	Normal	EP2111153	0.25	0.25	1.63	0.02	0.10	<0.02	<0.1	0.09	0.45	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	28/04/2022	0967_MW155S_220428	Normal	EP2204974	0.38	0.35	2.11	0.03	1.43	<0.02	<0.1	0.13	0.66	0.05	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	22/09/2022	0967_MW155S_220922	Normal	EP2212309	0.34	0.39	2.74	0.05	0.16	<0.02	<0.1	0.12	0.56	0.06	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	24/04/2023	0967_MW155S_230424	Normal	EP2305259	0.31	0.27	1.50	0.02	0.07	<0.02	<0.1	0.09	0.45	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW155S	25/09/2023	0967_MW155S_230925	Normal	EP2313263	0.31	0.28	1.63	0.02	0.06	<0.02	<0.1	0.07	0.44	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area R - RAAF Base Pearce Landfill	MW202	11/10/2017	PMW02	Normal	EP1711448	5.95	8.67	70.9	2.52	25.7	<0.02	1.4	2.79	15.0	1.80	*2.67*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	7/03/2019	0967_MW202_190307	Normal	EP1902154	5.84	7.45	75.7	2.81	30.9	<0.02	<0.1	3.78	15.6	2.25	*3.13*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	22/10/2019	0967_MW202_191022	Normal	EP1910814	6.20	8.59	62.6	2.44	19.4	<0.02	1.9	3.15	14.4	1.52	*2.93*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	22/10/2019	0967_QC103_191022	Field Duplicate	EP1910814	6.16	8.65	61.0	2.42	21.4	<0.02	1.9	3.24	14.5	1.47	*2.92*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	22/10/2019	0967_QC203_191022	Interlab Duplicate	684560	5.3	7.6	62	1.7	15	<0.01	1.4	<0.01	8.2	1.2	*2.4*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
	MW202	14/10/2020	0967_MW202_201014	Normal	EP2011182	4.77	7.12	37.4	1.48	15.5	<0.02	1.5	2.56	10.7	1.19	*2.07*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	14/10/2020	0967_QC102_201014	Field Duplicate	EP2011182	4.98	6.95	37.8	1.55	16.4	<0.02	1.6	2.54	10.7	1.12	*2.12*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	14/10/2020	0967_QC202_201014	Interlab Duplicate	751051	4.6	4.0	30	1.1	10	<0.01	1.5	2.2	9.2	1.0	*1.8*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
	MW202	21/04/2021	0967_MW202_210421	Normal	EP2104360	3.40	4.15	28.4	0.99	6.10	<0.02	1.0	1.78	6.64	0.93	*1.31*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	21/04/2021	0967_QC114_210421	Field Duplicate	EP2104360	3.19	4.13	28.0	1.00	6.32	<0.02	1.0	1.67	7.00	0.88	*1.18*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	21/04/2021	0967_QC214_210421	Interlab Duplicate	792064	3.6	3.7	26	0.61	15	<0.01	1.2	1.5	7.6	0.76	*1.3*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	MW202	8/09/2021	0967_MW202_210908	Normal	EP2110530	2.35	3.88	21.1	0.67	5.74	<0.02	0.7	1.16	5.24	0.57	*0.78*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	19/04/2022	0967_MW202_220419	Normal	EP2204502	15.6	23.3	156	1.52	7.14	<0.02	5.4	15.5	64.8	3.86	*3.60*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	21/09/2022	0967_MW202_220921	Normal	EP2212236	39.2	83.2	583	3.76	9.26	<0.02	16.4	38.6	221	9.60	***10.4***	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	12/04/2023	0967_MW202_230412	Normal	EP2304630	27.1	45.8	301	3.00	5.88	<0.02	10.0	22.5	111	7.05	*7.28*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	12/04/2023	0967_QC105_230412	Field Duplicate	EP2304630	38.5	63.8	421	4.47	8.59	<0.02	15.0	31.6	156	9.85	*9.65*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW202	12/04/2023	0967_QC205_230412	Interlab Duplicate	982488	26	65	330	2.7	7.4	<0.01	9.6	25	140	6.7	*7.7*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
	MW202	19/09/2023	0967_MW202_230919	Normal	EP2312976	16.3	30.9	196	2.20	4.90	<0.02	7.3	12.6	74.0	4.26	*4.38*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
Source Area R - RAAF Base Pearce Landfill	MW205	11/10/2017	PMW05	Normal	EP1711448	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	7/03/2019	0967_MW205_190307	Normal	EP1902154	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	22/10/2019	0967_MW205_191022	Normal	EP1910814	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	4/05/2020	0967_MW205_200504	Normal	EP2004452	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	14/10/2020	0967_MW205_201014	Normal	EP2011182	<0.02	<0.01	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	14/10/2020	0967_QC103_201014	Field Duplicate	EP2011182	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	14/10/2020	0967_QC203_201014	Interlab Duplicate	751051	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.01
	MW205	21/04/2021	0967_MW205_210421	Normal	EP2104360	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	8/09/2021	0967_MW205_210908	Normal	EP2110530	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	19/04/2022	0967_MW205_220419	Normal	EP2204502	<0.02	<0.01	**0.11**	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	**0.04**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	21/09/2022	0967_MW205_220921	Normal	EP2212236	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW205	19/09/2023	0967_MW205_230919	Normal	EP2312976	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
On-site - Other	MW218	31/10/2016	MW8G	Normal	EP1610345	<0.02	<0.02	0.13	<0.02	1.28	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	18/09/2017	MW8G	Normal	EP1710286	<0.02	<0.02	0.13	<0.02	0.69	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	6/03/2019	0967_MW218_190306	Normal	EP1902092	<0.02	<0.02	0.04	<0.02	0.81	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	29/10/2019	0967_MW218_191029	Normal	EP1911158	<0.02	<0.02	0.14	<0.02	0.58	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	13/05/2020	0967_MW218_200513	Normal	EP2004881	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	22/10/2020	0967_MW218_201022	Normal	EP2011562	<0.02	<0.02	0.13	<0.02	0.52	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	21/04/2021	0967_MW218_210421	Normal	EP2104360	<0.02	<0.02	0.11	<0.02	0.39	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	9/09/2021	0967_MW218_210909	Normal	EP2110592	<0.02	<0.02	0.18	<0.02	0.56	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.03	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	20/04/2022	0967_MW218_220420	Normal	EP2204593	<0.02	<0.02	0.09	<0.02	0.46	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	22/09/2022	0967_MW218_220922	Normal	EP2212309	<0.02	<0.02	0.16	<0.02	0.62	<0.02	<0.1	<0.02	<0.02	<0.02	**0.02**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	12/04/2023	0967_MW218_230412	Normal	EP2304630	<0.02	<0.02	0.11	<0.02	0.41	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
	MW218	19/09/2023	0967_MW218_230919	Normal	EP2312976	<0.02	<0.02	0.17	<0.02	0.32	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics											
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
	MW015	**8/09/2010**																							
	MW015	**1/04/2011**																							
	MW015	**1/04/2011**																							
	MW015	**3/04/2012**												73	<1	<1	3.94	3.91	66	0.45		<1	2	2	85
	MW015	**3/04/2012**												76	<1	<1	4	3.91	66	1.2		<1	2	2	85
	MW015	**12/09/2013**																							
	MW015	**7/12/2015**																							
	MW015	**9/03/2016**																							
	MW015	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			527	<1	56	<1	56			60		25	<1	2	1	71
	MW015	**16/12/2016**																							
	MW015	**20/09/2017**	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	***491***	536	550	<1	72	<1	72	3.38	3.04	49	5.41	27	<1	2	<1	66
Source Area A - FTA	**MW015**	**6/03/2019**	**0.03**	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***477***	524	550													
	MW015	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***311***	353	369	<1	115	<1	115	5.41	5.17	78	2.28	44	2	5	2	106
	MW015	**12/05/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	***639***	683	700	<1	123	<1	123	9.56	8.61	218	5.27	46	12	17	5	149
	MW015	**12/05/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	***651***	693	710	<1	117	<1	117	9.41	8.21	216	6.78	47	11	16	5	143
	MW015	**12/05/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***409***	434.95	444.37	<20	130	<20	130			200						
	MW015	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***372***	403	417	<1	146	<1	146	11.9	10.7	258	5.24	82	13	36	4	161
	MW015	**29/04/2021**	**0.04**	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***368***	408	420	<1	125	<1	125	11.6	10.6	271	4.80	71	12	32	4	166
	MW015	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***232***	250	257	<1	173	<1	173	8.04	7.15	130	5.84	44	7	18	4	120
	MW015	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***185***	201	209	<1	194	<1	194	7.99	7.28	115	4.69	42	7	17	7	123
	MW015	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***174***	187	195	<1	229	<1	229	7.60	6.39	85	8.64	30	6	14	6	110
	MW015	**24/04/2023**	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***161***	176	181	<1	164	<1	164	6.25	5.84	79	3.42	36	4	10	3	109
	MW015	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***105***	120	126	<1	153	<1	153	6.03	5.71	79	2.74	36	6	12	3	100
	MW052	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			2,970	<1	120	<1	120			202		60	1	2	1	191
	MW052	**19/09/2017**	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	***12,300***	12,500	12,600	<1	64	<1	64	10.0	9.47	264	3.00	64	<1	2	<1	214
	MW052	**29/10/2019**	0.10	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***925***	1,080	1,120	<1	81	<1	81	9.23	7.88	238	7.89	43	1	2	2	175
	MW052	**12/05/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	***1,190***	1,380	1,460	<1	84	<1	84	10.0	8.83	252	6.28	59	1	6	6	187
	MW052	**13/10/2020**	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***906***	1,030	1,080	<1	52	<1	52	8.80	8.92	227	0.71	65	1	2	2	199
Source Area A - FTA	**MW052**	**29/04/2021**	0.05	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***659***	824	876	<1	62	<1	62	10.6	10.1	297	2.62	48	1	3	3	223
	MW052	**20/09/2021**	0.09	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***1,520***	1,730	1,800	<1	144	<1	144	9.66	8.01	208	9.33	44	3	4	2	172
	MW052	**28/04/2022**	**0.22**	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***1,090***	1,230	1,270	<1	172	<1	172	11.2	9.47	244	8.27	41	2	4	3	206
	MW052	**26/09/2022**	0.18	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***1,500***	1,650	1,700	<1	128	<1	128	7.75	6.80	159	6.50	34	4	3	2	145
	MW052	**24/04/2023**	0.26	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***499***	597	618	<1	132	<1	132	9.66	9.12	220	2.87	39	<1	<1	1	209
	MW052	**25/09/2023**	0.15	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***357***	414	427	<1	54	<1	54	7.38	7.27	197	0.80	36	1	2	2	161
	MW053	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			152	<1	118	<1	118			155		47	1	1	<1	158
	MW053	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***75.7***	88.6	93.4	<1	88	<1	88	6.07	5.48	130	5.11	31	<1	<1	<1	126
	MW053	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***79.7***	92.2	97.0													
	MW053	**19/09/2017**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5																
Source Area A - FTA	**MW053**	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***70.2***	84.2	88.7													
	MW053	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***88.5***	106	111	<1	90	<1	90	7.43	6.70	176	5.17	32	<1	<1	<1	154
	MW053	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***92.6***	111	118	<1	47	<1	47	8.54	7.54	228	6.21	56	3	3	2	163
	MW053	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***74.1***	89.3	95.0	<1	74	<1	74	7.50	6.74	198	5.33	21	17	8	4	118
	MW053	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***155***	175	183	<1	86	<1	86	7.54	6.52	188	7.24	25	17	8	4	113
	MW053	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***67.0***	82.7	89.6	<1	43	<1	43	7.73	7.06	228	4.49	21	8	5	3	142
	MW055	**3/04/2012**												524	<1	<1	12.6	11.4	41	5.32		30	11	4	204
	MW055	**7/12/2015**																							
	MW055	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			35.0	<1	240	<1	240			23		28	27	8	4	87
	MW055	**15/12/2016**											<10	300					26						
Source Area A - FTA	**MW055**	**19/09/2017**	0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***18.5***	22.0	23.8	<1	273	<1	273	6.92	6.91	29	0.07	31	46	12	4	81
	MW055	**29/10/2019**	0.07	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***27.5***	32.5	35.1	<1	264	<1	264	6.68	5.94	30	5.91	27	28	9	4	85
	MW055	**12/05/2020**	0.09	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***56.8***	69.0	75.2	<1	226	<1	226	6.37	6.25	45	0.91	28	14	6	4	114
	MW055	**20/09/2021**	0.08	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***35.2***	40.6	44.2	<1	219	<1	219	5.98	5.75	37	1.97	27	32	8	4	78
	MW055	**26/09/2022**	0.08	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***45.3***	51.6	55.7	<1	232	<1	232	6.08	5.69	32	3.34	26	26	8	3	84
	MW055	**25/09/2023**	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***22.7***	26.3	28.7	<1	223	<1	223	5.74	5.44	27	2.65	25	21	7	3	86
	MW101	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			4.59	<1	26	<1	26			2,350		417	87	226	18	1,300
	MW101	**1/11/2016**	<0.1	<0.05		<0.1	<0.05		<0.5					30					2,900	-5.3		86	220	14	1,300
	MW101	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			4.69	<1	26	<1	26			2,480		378	88	233	18	1,320
	MW101	**20/09/2017**	<0.10	<0.25	<0.10	<0.25	<0.25	<0.10	<0.25	***292***	325	334	<1	106	<1	106	26.6	26.1	779	1.06	122	24	53	13	464
	MW101	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***108***	123	128													
	MW101	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***200***	256	268	<1	149	<1	149	46.9	41.8	1,400	5.68	211	87	118	16	629
Source Area A - FTA	**MW101**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***47.0***	55.4	58.8	<1	60	<1	60	75.6	73.9	2,430	1.14	282	85	206	20	1,200
	MW101	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***210***	250	263	<1	141	<1	141	44.9	46.5	1,320	1.72	233	74	111	23	760
	MW101	**29/04/2021**	0.04	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***134***	180	189	<1	142	<1	142	50.5	51.2	1,550	0.69	191	77	120	23	849
	MW101	**20/09/2021**	0.06	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***460***	573	622	<1	164	<1	164	32.3	31.6	887	1.14	194	48	63	11	546
	MW101	**28/04/2022**	**0.06**	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***526***	687	736	<1	285	<1	285	40.8	37.0	1,100	4.86	197	69	74	16	623
	MW101	**26/09/2022**	**0.14**	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***462***	524	550	<1	180	<1	180	31.3	29.7	823	2.54	215	46	72	13	487
	MW101	**24/04/2023**	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***61.2***	69.5	72.4	<1	82	<1	82	59.8	65.0	1,890	4.16	232	72	170	16	1,080
	MW101	**25/09/2023**	0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***232***	280	297	<1	140	<1	140	34.8	32.5	977	3.55	216	44	83	10	533
	MW102	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			3.45	<1	70	<1	70			2,070		167	94	256	31	962
	MW102	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***5.64***	7.20	8.00	<1	29	<1	29	74.6	75.1	2,490	0.28	184	100	276	15	1,080
	MW102	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***5.61***	7.23	8.03													
	MW102	**19/09/2017**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5																
	MW102	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.45***	3.27	3.64													
	MW102	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.46***	3.31	3.70													
	MW102	**6/03/2019**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*2.0*		3.2													
Source Area A - FTA	**MW102**	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.40***	3.14	3.43	<1	15	<1	15	71.2	63.8	2,390	5.53	169	89	245	16	891
	MW102	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.96***	5.53	6.29	<1	15	<1	15	71.5	68.3	2,400	2.30	168	90	263	17	959
	MW102	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.03***	4.05	4.52	<1	15	<1	15	68.6	67.4	2,280	0.91	191	92	257	18	946
	MW102	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***4.33***	5.92	6.57	<1	12	<1	12	70.9	71.0	2,390	0.03	157	96	265	17	1,010
	MW102	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.68***	4.65	5.11	<1	61	<1	61	61.8	68.1	2,040	4.85	147	83	256	30	969
	MW102	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***4.76***	6.19	6.76	<1	245	<1	245	67.2	64.6	2,130	1.96	106	82	247	32	905
	MW102	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.96***	3.87	4.28	<1	15	<1	15	61.7	66.2	2,060	3.46	160	89	254	18	928
	MW102	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.79***	3.97	4.46	<1	14	<1	14	72.8	74.0	2,440	0.79	179	88	265	15	1,090
	MW102	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.61***	4.85	5.31										93	248	17	915
	MW103	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			0.03	<3	28	<1	28			1,380		123	56	165	18	613
	MW103	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.23*	0.34	0.39	<1	154	<1	154	47.5	49.4	1,480	1.88	130	129	163	21	666
	MW103	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	1.11	1.18													
	MW103	**28/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	22	<1	22	45.2	45.2	1,500	0.05	120	61	166	14	647
Source Area B - Former FTA	**MW103**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	23	<1	23	45.2	45.3	1,500	0.09	118	55	181	19	625
	MW103	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	21	<1	21	44.6	45.0	1,470	0.37	132	56	178	20	621
	MW103	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.31	0.31	<1	20	<1	20	47.4	49.2	1,580	1.86	118	64	191	20	685
	MW103	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.09*	1.64	1.69	<1	106	<1	106	24.0	22.9	688	2.33	118	50	67	7	338
	MW103	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.45*	0.45	0.45	<1	25	<1	25	46.1	46.0	1,520	0.12	130	63	189	22	614
	MW103	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.34*	1.93	2.02	<1	243	<1	243	14.0	11.8	280	8.50	62	30	12	2	214
	MW103	**17/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14	<1	16	<1	16	51.5	51.5	1,720	<0.01	129	57	190	18	749
	MW103	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.22	0.22	<1	22	<1	22	44.5	45.2	1,470	0.74	126	58	183	19	615
	MW104	**28/09/2016**								67.2	67.8														
	MW104	**28/09/2016**								276	331														
	MW104	**31/10/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			23.2	<1	44	<1	44			1,440		84	56	174	16	543
	MW104	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.22***	5.54	5.85	<1	39	<1	39	46.1	46.0	1,530	0.11	102	51	198	16	614
	MW104	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	3.35	3.59													
	MW104	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.85*	1.47	1.50	<1	<1	<1	<1	44.8	38.6	1,520	7.44	93	48	170	15	502
	MW104	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.31*	0.37	0.37	<1	2	<1	2	43.5	43.5	1,470	0.05	97	50	192	17	569
Source Area B - Former FTA	**MW104**	**22/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	24	<1	24	46.4	45.5	1,560	0.94	91	54	201	19	593
	MW104	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	12	<1	12	45.0	45.9	1,520	0.98	91	54	197	18	610
	MW104	**13/08/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01													
	MW104	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***16.3***	35.0	38.4	<1	3	<1	3	40.8	44.3	1,390	4.17	72	55	193	18	580
	MW104	**21/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	8	<1	8	44.4	48.7	1,500	4.65	93	59	217	21	630
	MW104	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.81*	0.97	1.00	<1	3	<1	3	44.5	45.2	1,510	0.80	87	55	200	19	586
	MW104	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	2	<1	2	48.5	49.8	1,640	1.28	105	55	207	17	679
	MW104	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	3	<1	3	43.6	44.6	1,470	1.16	100	57	200	19	571
	MW105	**31/10/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			0.55	<1	88	<1	88			1,460		190	71	159	17	602
	MW105	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.49*	0.99	1.03	<1	58	<1	58	45.2	47.6	1,480	2.56	110	56	177	13	687
	MW105	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	1.04	1.08													
	MW105	**19/09/2017**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5																
	MW105	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.46	0.49													
	MW105	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.53	0.56													
	MW105	**5/03/2019**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.25*		0.46													
Source Area B - Former FTA	**MW105**	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.33	0.33	<1	55	<1	55	42.4	38.2	1,400	5.22	88	52	142	14	542
	MW105	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.20	0.20	<1	59	<1	59	43.3	41.9	1,430	1.58	84	52	168	14	578
	MW105	**22/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.16	0.16	<1	50	<1	50	41.6	42.8	1,380	1.41	80	57	164	15	599
	MW105	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.57*	0.82	0.85	<1	65	<1	65	42.2	43.0	1,390	0.98	81	60	155	14	619

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics												
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
	MW105	**13/08/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.19	0.19													
	MW105	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.79*	2.76	2.83	<1	65	<1	65	38.1	40.4	1,260	2.96	59	58	149	14	572
	MW105	**21/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.45*	0.67	0.67	<1	76	<1	76	41.3	43.4	1,350	2.53	81	63	163	15	609
	MW105	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.52***	4.83	4.99	<1	83	<1	83	40.5	40.6	1,320	0.10	76	57	150	14	575
	MW105	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.92	0.95	<1	71	<1	71	40.8	44.5	1,330	4.36	88	56	154	12	660
	MW105	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15	<1	38	<1	38	41.6	41.6	1,390	0.05	79	54	177	15	550
	MW107	**31/10/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			0.25	<1	12	<1	12			2,440		197	60	263	15	1,100
	MW107	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.17	0.17	<1	45	<1	45	95.9	95.1	3,210	0.40	212	72	326	12	1,480
	MW107	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.28	0.28													
	MW107	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.30	0.30													
	MW107	**5/03/2019**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.08*		0.17													
	MW107	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	14	<1	14	90.2	83.4	3,020	3.94	230	68	307	15	1,250
Source Area C – Hangar 93 and Foam Disposal Pit	**MW107**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	28	<1	28	93.7	91.4	3,130	1.27	235	72	343	16	1,360
	MW107	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.20	0.20	<1	118	<1	118	82.3	82.0	2,690	0.15	195	55	239	19	1,360
	MW107	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13	<1	7	<1	7	83.9	84.6	2,780	0.42	258	57	239	14	1,420
	MW107	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.24*	0.24	0.24	<1	<1	<1	<1	75.7	79.2	2,500	2.28	250	55	228	13	1,320
	MW107	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	<1	<1	<1	84.5	79.1	2,790	3.31	279	55	236	15	1,300
	MW107	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.23	0.23	<1	30	<1	30	80.7	82.2	2,660	0.96	242	66	252	14	1,330
	MW107	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	8	<1	8	88.1	94.3	2,900	3.42	295	74	268	12	1,570
	MW107	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.06	0.08	<1	18	<1	18	86.1	87.4	2,820	0.72	298	82	278	14	1,380
	MW109	**31/10/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			1.14	<1	<1	<1	<1			3,010		200	97	341	14	1,300
	MW109	**19/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.38	0.41	<1	<1	<1	<1	98.7	100	3,320	0.92	243	102	369	11	1,490
	MW109	**5/03/2019**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	*0.56*	0.64	0.70													
	MW109	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.76*	0.95	1.00	<1	<1	<1	<1	80.0	75.0	2,680	3.28	214	83	273	20	1,100
Source Area C – Hangar 93 and Foam Disposal Pit	**MW109**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.55	0.60	<1	<1	<1	<1	92.7	92.0	3,110	0.35	239	94	349	14	1,340
	MW109	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.39	0.43	<1	<1	<1	<1	83.5	91.5	2,770	4.59	258	101	359	16	1,300
	MW109	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	0.69	0.74	<1	<1	<1	<1	90.6	93.4	3,040	1.53	231	102	355	14	1,350
	MW109	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.42*	0.52	0.56	<1	<1	<1	<1	86.4	91.2	2,910	2.66	210	102	360	14	1,290
	MW109	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.60*	0.81	0.86	<1	1	<1	1	92.3	87.3	3,100	2.80	233	100	361	15	1,200
	MW109	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	0.68	0.74	<1	<1	<1	<1	87.7	89.9	2,950	1.28	214	102	371	15	1,240
	MW109	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.53*	0.77	0.83	<1	16	<1	16	84.5	94.0	2,850	5.29	183	94	357	12	1,370
	MW109	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.86	0.92	<1	2	<1	2	66.8	69.6	2,230	2.05	187	80	272	11	988
	MW110	**31/10/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			0.77	<1	53	<1	53			2,070		141	57	196	22	865
	MW110	**20/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.21*	0.24	0.24	<1	111	<1	111	118	111	3,900	2.70	255	104	364	21	1,740
	MW110	**5/03/2019**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	0.06	0.06	0.06													
	MW110	**29/10/2019**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<1	72	<1	72	117	114	3,820	1.36	365	110	387	25	1,740
Source Area C – Hangar 93 and Foam Disposal Pit	**MW110**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.15	0.15	<1	70	<1	70	107	108	3,510	0.29	312	91	346	22	1,700
	MW110	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	15	<1	15	53.3	52.2	1,770	0.98	146	45	145	15	866
	MW110	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	1.00	1.04	<1	11	<1	11	68.1	70.0	2,280	1.36	171	60	201	16	1,150
	MW110	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	39.0	39.7	1,320	0.92	74	35	106	11	666
	MW110	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.28	0.28	<1	26	<1	26	51.6	51.0	1,700	0.59	151	47	161	14	806
	MW110	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	21	<1	21	18.9	16.7	626	6.29	40	14	40	6	288
	MW110	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	33	<1	33	59.5	63.9	1,980	3.53	145	50	182	12	1,060
	MW110	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	10	<1	10	38.4	37.9	1,290	0.68	87	34	107	11	623
	MW112	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			0.89	<1	23	<1	23			1,170		98	39	103	11	529
	MW112	**28/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.43	0.43	<1	13	<1	13	36.6	36.6	1,230	0.02	77	39	114	11	574
	MW112	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.95*	1.02	1.02													
	MW112	**23/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	0.61	0.61	<1	7	<1	7	32.0	35.4	1,070	5.09	80	40	109	14	554
	MW112	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	0.56	0.56	<1	35	<1	35	35.3	35.2	1,180	0.19	64	40	112	12	544
	MW112	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.72*	0.84	0.84	<1	20	<1	20	32.8	35.5	1,090	4.01	79	40	112	12	552
	MW112	**20/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.48*	1.77	1.85	<1	237	<1	237	40.4	38.3	1,190	2.65	101	148	101	12	513
Source Area D - Grounds Maintenance Area	**MW112**	**8/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.12*	1.35	1.42	<1	192	<1	192	40.4	37.3	1,230	3.99	91	124	104	12	512
	MW112	**8/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.22*	1.53	1.60	<1	156	<1	156	39.9	37.7	1,240	2.83	85	106	108	12	533
	MW112	**8/09/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*1.35*	1.63	1.71													
	MW112	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.44*	0.48	0.48	<1	14	<1	14	36.9	37.8	1,230	1.17	93	48	121	13	577
	MW112	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.45*	0.49	0.49	<1	11	<1	11	35.4	35.0	1,190	0.61	78	43	112	12	536
	MW112	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.29*	0.29	0.29	<1	12	<1	12	35.9	40.8	1,220	6.39	62	42	119	10	660
	MW112	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19	<1	26	<1	26	36.9	34.8	1,230	2.88	80	43	114	11	529
	MW112	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19	<1	16	<1	16	36.7	35.1	1,230	2.23	82	43	114	11	536
	MW112	**13/09/2023**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.2*	0.21	0.21													
	MW113	**1/11/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			1.58	<1	166	<1	166			731		196	33	48	7	345
	MW113	**28/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.20*	1.46	1.57	<1	190	<1	190	21.1	19.9	580	2.91	45	28	42	5	343
	MW113	**23/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.47*	0.58	0.62	<1	125	<1	125	17.6	16.7	504	2.45	41	27	42	7	270
	MW113	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.53*	0.64	0.68	<1	96	<1	96	21.0	18.9	643	5.28	44	29	56	6	291
	MW113	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.68*	0.83	0.88	<1	46	<1	46	21.6	21.9	686	0.75	65	26	68	7	342
	MW113	**20/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.56*	0.67	0.71	<1	102	<1	102	16.0	12.2	469	13.5	34	20	30	4	198
	MW113	**20/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.62*	0.74	0.79	<1	100	<1	100	17.8	14.9	540	9.12	30	22	40	5	238
	MW113	**20/04/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.52*	0.64	0.71	<10	120	<20	120			550						
	MW113	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	0.83	0.88	<1	17	<1	17	26.2	24.3	877	3.70	54	28	78	8	375
	MW113	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.59*	0.72	0.78	<1	116	<1	116	14.7	13.4	415	4.62	34	29	32	5	212
	MW113	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.96*	1.13	1.22	<1	52	<1	52	23.2	21.2	739	4.52	65	28	67	7	325
	MW113	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.60*	0.85	0.92	<1	121	<1	121	15.9	16.8	445	2.93	44	26	36	4	287
	MW113	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.58*	0.86	0.93	<1	122	<1	122	15.9	15.7	445	0.71	43	23	34	4	267
	MW113	**12/04/2023**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.51*	0.72	0.8													
	MW113	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.61	0.66	<1	99	<1	99	16.2	13.2	475	10.1	40	25	34	4	209
	MW113	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.59	0.64	<1	83	<1	83	18.5	15.2	562	9.60	46	26	42	5	238
	MW113	**13/09/2023**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.49*	0.58	0.65													
	MW114	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	59	<1	59			266		40	14	15	10	139
	MW114	**28/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	23	<1	23	8.71	7.63	268	6.56	33	4	15	6	139
	MW114	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW114	**7/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	12	<1	12	8.17	7.32	262	5.48	26	3	15	6	133
	MW114	**7/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	12	<1	12	8.14	7.07	261	7.08	26	3	14	6	129
	MW114	**7/11/2019**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	<20					520						
On-site - Other	**MW114**	**6/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	16	<1	16	8.72	7.27	280	9.08	24	3	14	7	133
	MW114	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	15	<1	15	8.53	7.76	274	4.68	24	3	15	8	142
	MW114	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	9.18	8.00	297	6.90	28	3	16	7	146
	MW114	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	9.18	7.83	297	7.96	28	3	15	7	144
	MW114	**10/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	14	<1	14	9.40	8.00	305	8.09	25	3	16	7	146
	MW114	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	24	<1	24	8.81	8.03	282	4.64	18	4	16	8	145
	MW114	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	23	<1	23	8.94	7.56	288	8.31	17	3	15	7	138
	MW114	**11/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	8.74	8.95	282	1.22	27	3	16	7	168
	MW114	**14/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	17	<1	17	9.44	7.82	307	9.36	21	3	16	7	142
	MW115	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	81	<1	81			460		68	13	25	4	236
	MW115	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	20	<1	20	18.3	15.5	567	8.13	90	8	33	2	284
	MW115	**13/03/2018**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW115	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW115	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	26	<1	26	17.4	17.4	547	0.10	69	9	33	2	325
	MW115	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	24	<1	24	17.3	17.0	545	0.97	71	8	33	2	318
	MW115	**30/10/2019**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	<20					520						
	MW115	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	69	<1	69	18.3	15.5	584	8.20	22	9	33	4	282
On-site - Other	**MW115**	**12/10/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<1	12	<1	12	17.1	16.4	526	2.05	96	9	36	4	296
	MW115	**12/10/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<1	10	<1	10	16.7	16.0	520	2.40	90	8	34	4	291
	MW115	**12/10/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	<20	<20	<20			490						
	MW115	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	22	<1	22	18.7	15.6	591	8.87	76	7	34	4	285
	MW115	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	14	<1	14	18.5	16.2	590	6.46	74	8	33	4	299
	MW115	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	22	<1	22	18.0	17.3	570	2.01	70	11	37	4	312
	MW115	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	29	<1	29	18.0	17.7	566	0.94	70	13	38	4	317
	MW115	**20/04/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW115	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	15	<1	15	17.6	15.1	562	7.66	72	8	32	4	276
	MW115	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02	<1	15	<1	15	17.5	18.8	551	3.76	78	11	37	4	348
	MW115	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	16	<1	16	18.6	16.9	596	4.64	70	8	32	3	318
	MW116	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	96	<1	96			1,470		148	46	122	12	758
	MW116	**28/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	41	<1	41	46.2	46.6	1,510	0.42	132	37	127	11	781
	MW116	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW116	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	32	<1	32	45.7	39.6	1,510	7.21	120	34	107	11	662
	MW116	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	35	<1	35	46.2	38.8	1,520	8.76	126	33	104	11	650
	**M

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics												
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
	MW116	**8/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	36	<1	36	42.0	41.6	1,400	0.45	86	36	109	11	703
	MW116	**8/09/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW116	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	40.7	41.8	1,350	1.31	116	35	114	12	698
	MW116	**22/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	11	<1	11	45.0	43.5	1,500	1.65	118	37	118	12	728
	MW116	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	20	<1	20	45.0	52.0	1,500	7.14	112	35	129	11	904
	MW116	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	7	<1	7	48.4	48.2	1,600	0.16	149	40	134	12	802
	MW117	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	22	<1	22			1,270		159	34	131	17	607
	MW117	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	87	<1	87	47.1	46.6	1,500	0.53	145	31	154	20	732
	MW117	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
	MW117	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01													
	MW117	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	12	<1	12	42.0	39.4	1,380	3.08	134	30	133	15	612
	MW117	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	42	<1	42	41.9	41.7	1,380	0.19	102	32	152	19	624
On-site - Other	**MW117**	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	104	<1	104	39.6	43.4	1,290	4.57	54	32	153	19	660
	MW117	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	37.8	41.8	1,240	5.12	129	29	144	18	646
	MW117	**12/10/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.1	<10	<20	<20	<20			1,200						
	MW117	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	40.4	39.8	1,340	0.71	125	28	137	16	615
	MW117	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	41.8	43.8	1,380	2.36	138	32	155	18	667
	MW117	**19/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	2	<1	2	40.2	41.8	1,330	2.06	125	31	152	17	629
	MW117	**17/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	47.6	48.5	1,580	0.91	145	31	159	15	769
	MW117	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	3	<1	3	45.5	43.8	1,510	1.87	136	32	158	18	661
	MW118	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			**0.03**	<1	49	<1	49			1,270		101	54	123	17	592
	MW118	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	37	<1	37	37.6	37.0	1,250	0.84	78	32	113	12	593
	MW118	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.47	0.47													
	MW118	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	6	<1	6	34.3	36.8	1,150	3.53	85	30	108	9	603
	MW118	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	4	<1	4	34.6	37.1	1,160	3.62	84	30	109	9	608
	MW118	**30/10/2019**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06	<0.1	<10	<20					1,300						
	MW118	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	12	<1	12	37.3	37.7	1,260	0.44	75	32	130	16	574
	MW118	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	4	<1	4	33.8	37.4	1,130	5.13	87	31	116	14	597
	MW118	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	7	<1	7	32.7	36.4	1,090	5.23	89	31	111	14	582
	MW118	**12/10/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.06	<0.1	<10	<20	<20	<20			1,100						
	MW118	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	8	<1	8	37.9	39.1	1,280	1.57	78	30	125	22	615
On-site - Other	**MW118**	**13/08/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07													
	MW118	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	3	<1	3	37.9	37.7	1,280	0.22	82	30	124	15	589
	MW118	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	3	<1	3	37.9	37.3	1,280	0.81	83	30	121	15	585
	MW118	**7/09/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.08*	0.09	<0.1													
	MW118	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	2	<1	2	42.4	43.6	1,440	1.41	83	38	165	18	636
	MW118	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	<1	<1	<1	46.6	47.1	1,590	0.54	83	41	194	21	656
	MW118	**19/04/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.12*	0.29	0.29													
	MW118	**19/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.22	0.22	0.24	<1	1	<1	1	35.8	37.4	1,210	2.06	82	32	124	15	579
	MW118	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	<1	<1	<1	45.2	48.8	1,540	3.76	86	38	183	16	722
	MW118	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	<1	<1	<1	45.8	50.4	1,560	4.80	86	39	192	17	741
	MW118	**12/04/2023**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW118	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	<1	<1	<1	43.1	44.7	1,480	1.73	67	38	172	20	646
	MW119	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	25	<1	25			446		43	9	22	9	219
	MW119	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	13.7	12.0	451	6.88	43	7	24	8	217
	MW119	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.55	0.55													
	MW119	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	12.6	11.8	415	3.17	38	7	23	8	216
	MW119	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	<1	8	13.6	11.9	450	6.72	38	7	25	10	213
	MW119	**4/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	13	<1	13	13.9	11.8	458	8.29	36	7	25	10	210
	MW119	**4/05/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	<20	<20	<20			440						
	MW119	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	13.2	12.5	430	2.45	44	7	25	10	227
	MW119	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	<1	8	13.1	11.8	428	5.35	43	6	24	10	213
On-site - Other	**MW119**	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	2	<1	2	14.9	11.5	476	12.9	71	7	23	9	208
	MW119	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	5	<1	5	13.8	12.5	456	4.97	40	7	26	10	224
	MW119	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	5	<1	5	14.0	12.2	461	6.84	42	7	25	10	219
	MW119	**19/04/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW119	**19/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	7	<1	7	13.7	12.0	452	6.64	41	7	25	9	216
	MW119	**19/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	<1	8	13.6	12.0	448	6.41	40	7	25	9	215
	MW119	**19/09/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW119	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	<1	8	13.1	14.0	430	3.30	41	6	26	8	262
	MW119	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	8	<1	8	14.2	12.2	468	7.68	41	7	25	10	219
	MW119	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	14.3	12.2	472	7.90	43	7	25	10	220
	MW119	**11/09/2023**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW120	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	<1	78	<1	78			662		122	60	174	20	812
	MW120	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	65.0	61.2	2,180	3.03	167	55	204	20	945
	MW120	**6/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW120	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	64.1	56.9	2,160	5.90	151	57	199	22	854
	MW120	**5/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	60.3	61.8	2,020	1.26	159	62	217	25	925
	MW120	**5/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	61.4	62.6	2,060	0.97	157	63	220	26	935
On-site - Other	**MW120**	**5/05/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	<20	<20	<20			2,300						
	MW120	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	<1	<1	<1	58.5	69.9	1,940	8.87	182	71	238	26	1,060
	MW120	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	59.8	63.6	2,000	3.11	162	63	219	26	961
	MW120	**8/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	<1	<1	<1	69.8	65.8	2,370	3.00	144	67	223	23	1,000
	MW120	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	63.7	69.2	2,140	4.14	161	72	244	29	1,030
	MW120	**20/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.04**	**0.04**	**0.04**	<1	<1	<1	<1	71.5	67.2	2,400	3.09	184	71	238	24	1,000
	MW120	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.1	<1	3	<1	3	70.8	70.2	2,390	0.42	158	69	228	22	1,090
	MW120	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	<1	<1	<1	73.4	72.6	2,460	0.57	192	76	257	25	1,080
	MW121	**7/12/2016**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01	75	<1	544	618			1,180		90	165	12	23	628
	MW121	**18/09/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	59	<1	59	56.2	55.0	1,830	1.05	163	55	137	15	934
	MW121	**5/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01													
	MW121	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	23	<1	23	52.4	45.7	1,730	6.84	151	37	118	15	776
	MW121	**9/06/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	15	<1	15	51.0	45.6	1,690	5.52	145	32	116	16	784
On-site - Other	**MW121**	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	12	<1	12	43.6	50.6	1,430	7.42	147	33	127	17	876
	MW121	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	9	<1	9	45.7	44.9	1,510	0.88	139	30	113	16	774
	MW121	**8/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	9	<1	9	46.6	46.0	1,560	0.68	116	32	113	16	797
	MW121	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	43	<1	43	45.0	47.4	1,470	2.61	128	45	119	17	803
	MW121	**20/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	9	<1	9	42.1	41.8	1,390	0.33	129	32	107	15	713
	MW121	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	115	<1	115	45.8	50.4	1,450	4.84	123	62	109	13	874
	MW121	**11/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	20	<1	20	42.6	44.6	1,400	2.33	131	36	112	16	764
	MW122D	**4/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	212	<1	212	24.2	22.1	581	4.54	170	31	35	11	399
	MW122D	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW122D	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	269	<1	269	20.4	19.8	472	1.39	80	36	36	8	341
	MW122D	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	227	<1	227	24.8	21.9	596	6.09	164	32	37	14	389
	MW122D	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	214	<1	214	24.4	24.1	567	0.66	198	31	40	14	434
	MW122D	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	218	<1	218	25.9	22.2	627	7.63	185	29	37	13	400
	MW122D	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	240	<1	240	25.7	22.5	626	6.62	155	30	37	13	405
On-site - Other	**MW122D**	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	273	<1	273	26.5	22.6	634	7.92	152	32	38	14	403
	MW122D	**9/09/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW122D	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	268	<1	268	22.8	22.5	532	0.73	118	40	40	16	386
	MW122D	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	**0.22**	**0.23**	**0.23**	<1	232	<1	232	25.3	24.8	598	0.87	181	32	42	15	446
	MW122D	**20/04/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW122D	**20/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	259	<1	254	25.3	21.1	587	9.04	177	24	34	13	386
	MW122D	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	310	<1	310	18.2	17.2	406	3.00	28	32	30	14	293
	MW122D	**13/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	343	<1	343	19.6	17.5	439	5.72	20	47	30	14	284
	MW122S	**4/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.87*	1.10	1.22	<1	68	<1	68	19.7	18.7	594	2.67	78	20	49	6	311
	MW122S	**13/03/2018**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.75*	0.91	0.98													
	MW122S	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.01*	1.25	1.36													
	MW122S	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.78*	0.94	1.01	<1	45	<1	45	25.4	26.5	807	2.01	85	28	74	6	433
	MW122S	**30/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.63*	0.76	0.81	<1	37	<1	37	28.7	30.8	922	3.49	95	32	90	7	497
	MW122S	**30/10/2019**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.52*	0.61	0.67	<10	34					980						
	MW122S	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.67*	0.77	0.82	<1	32	<1	32	32.3	30.5	1,040	2.82	111	35	99	12	467
	MW122S	**12/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.99*	1.16	1.25	<1	43	<1	43	25.5	26.8	802	2.58	95	29	82	10	422
	MW122S	**19/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.54*	0.63	0.67	<1	32	<1	32	31.9	29.6	1,030	3.78	105	32	95	12	456
	MW122S	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.32	0.34	<1	49	<1	49	30.9	28.0	997	4.87	87	32	88	11	435
	MW122S	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.46	0.49	<1	49	<1	49	23.2	23.5	734	0.58	75	27	72	11	367
	MW122S	**20/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.54*	1.82	1.99	<1	69	<1	66	16.0	13.6	474	8.18	64	12	34	6	231
	MW122S	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.73*	0.85	0.93	<1	56	<1	56	20.8	21.2	650	0.87	64	18	56	8	355
	MW122S	**13/09/2023**	<0.02	<0.05

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics												
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
	MW123D	30/10/2019	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	210					1,500						
	MW123D	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	217	<1	217	45.0	44.0	1,330	1.09	149	103	110	17	675
	MW123D	22/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	246	<1	246	47.3	49.3	1,400	2.06	140	167	144	18	659
	MW123D	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	349	<1	349	35.1	33.0	986	3.05	14	123	85	20	445
On-site - Other	MW123D	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	386	<1	386	43.0	40.6	1,220	2.80	42	114	99	18	606
	MW123D	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	358	<1	358	44.7	41.6	1,300	3.58	41	111	101	18	627
	MW123D	8/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW123D	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	405	<1	405	45.3	48.3	1,280	3.20	54	168	132	21	656
	MW123D	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	336	<1	336	45.9	50.3	1,340	4.53	68	177	142	21	672
	MW123D	20/04/2022	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.05	<0.1													
	MW123D	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	321	<1	315	43.0	40.5	1,220	3.04	111	108	104	17	600
	MW123D	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	393	<1	393	35.6	36.0	969	0.54	22	104	87	16	535
	MW123D	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.46*	0.54	0.57	<1	333	<1	333	27.0	25.8	700	2.09	27	91	56	12	377
	MW123S	4/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	67	<1	67	45.0	48.1	1,440	3.35	146	70	145	13	744
	MW123S	13/03/2018	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW123S	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.48	0.48													
	MW123S	30/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	59	<1	59	45.1	50.0	1,450	5.15	144	71	143	10	791
	MW123S	30/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	59	<1	59	44.3	49.7	1,420	5.72	147	70	142	10	787
	MW123S	30/10/2019	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	58					1,500						
On-site - Other	MW123S	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	56	<1	56	49.1	47.5	1,580	1.65	162	66	146	16	730
	MW123S	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	80	<1	80	50.5	48.8	1,620	1.68	155	68	151	16	750
	MW123S	13/05/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	67	<20	67			1,600						
	MW123S	22/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	55	<1	55	47.1	48.2	1,520	1.16	149	68	146	16	744
	MW123S	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	58	<1	58	46.7	45.4	1,500	1.33	154	66	137	17	700
	MW123S	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	62	<1	62	51.6	46.4	1,690	5.35	130	64	140	15	719
	MW123S	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16	<1	15	<1	15	47.7	53.4	1,570	5.61	151	83	164	31	804
	MW123S	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	58	44.9	45.1	1,430	0.19	163	66	140	16	686
	MW123S	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	89	<1	89	59.5	62.1	1,890	2.14	211	72	162	14	1,030
	MW123S	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	154	<1	154	59.1	52.3	1,890	6.17	132	70	154	15	821
	MW124D	4/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	390	<1	390	24.6	25.9	571	2.55	33	120	62	15	331
	MW124D	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW124D	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	268	<1	268	28.9	25.8	786	5.68	68	101	58	14	360
	MW124D	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	119	<1	119	22.8	20.2	680	5.98	60	50	45	13	315
	MW124D	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	121	<1	121	23.1	19.9	688	7.50	62	50	44	13	309
	MW124D	5/05/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	130	<20	130			620						
On-site - Other	MW124D	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	234	<1	234	28.3	28.8	778	0.78	82	110	64	14	406
	MW124D	20/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	156	<1	156	24.0	19.0	690	11.6	67	48	40	12	299
	MW124D	9/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	183	<1	183	28.4	25.5	815	5.42	84	74	51	14	396
	MW124D	21/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	136	<1	136	23.0	22.5	675	1.11	59	57	50	15	348
	MW124D	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	213	<1	213	26.9	23.2	744	7.48	81	80	51	13	337
	MW124D	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	126	<1	126	21.6	22.4	630	1.98	61	40	43	11	382
	MW124D	19/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	283	<1	283	30.6	28.3	831	4.00	74	113	62	14	395
	MW124S	4/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	125	<1	125	47.6	46.7	1,500	0.89	133	92	130	12	716
	MW124S	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW124S	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	102	<1	102	54.9	51.6	1,760	3.11	155	93	150	15	787
	MW124S	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	92	<1	92	53.4	50.7	1,730	2.57	131	93	146	16	773
	MW124S	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	100	<1	100	47.9	54.1	1,520	6.04	146	98	153	16	832
	MW124S	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	100	<1	100	48.2	54.9	1,530	6.47	146	100	156	16	842
	MW124S	12/10/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	91	<20	91			1,600						
On-site - Other	MW124S	20/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<3	90	<1	90	50.4	48.8	1,620	1.65	140	90	136	15	752
	MW124S	20/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	93	<1	93	51.0	48.6	1,640	2.51	141	89	135	15	750
	MW124S	20/04/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	100	<20	100			1,900						
	MW124S	9/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	104	<1	104	52.2	51.5	1,680	0.66	131	95	144	15	794
	MW124S	21/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	95	<1	95	53.4	57.0	1,720	3.29	143	103	167	17	867
	MW124S	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	101	<1	98	48.5	50.0	1,540	1.55	150	92	145	15	762
	MW124S	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	94	<1	94	57.5	58.8	1,860	1.10	150	90	159	13	939
	MW124S	19/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	110	<1	110	55.3	53.8	1,760	1.42	168	98	154	15	824
	MW125D	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	171	<1	171	89.6	88.0	2,880	0.89	238	116	127	35	1,630
	MW125D	11/03/2019	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05													
	MW125D	19/11/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	66	<1	66	90.8	80.2	3,010	6.20	218	125	139	45	1,410
	MW125D	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	69	<1	69	98.1	94.4	3,230	1.92	270	142	163	50	1,670
	MW125D	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	87	<1	87	94.1	94.3	3,090	0.14	248	131	154	46	1,700
	MW125D	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	74	<1	74	93.2	93.8	3,070	0.30	246	130	153	46	1,690
Off-site	MW125D	14/10/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	250	<20	250			2,900						
	MW125D	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	65	<1	65	65.6	70.0	2,180	3.27	135	80	99	36	1,310
	MW125D	6/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	74	<1	74	65.4	78.9	2,160	9.32	145	97	115	42	1,460
	MW125D	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	62	<1	62	79.2	81.9	2,620	1.65	195	108	128	44	1,490
	MW125D	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	69	<1	69	69.2	65.8	2,290	2.51	156	78	97	35	1,220
	MW125D	13/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	56	<1	56	98.2	102	3,240	1.93	274	134	158	41	1,870
	MW125D	14/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	103	<1	103	84.5	80.7	2,770	2.26	205	107	132	40	1,460
	MW125S	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	218	<1	218	92.8	86.7	3,000	3.39	182	139	167	13	1,510
	MW125S	11/03/2019	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05													
	MW125S	19/11/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	239	<1	239	97.2	83.3	3,150	7.70	171	154	184	17	1,380
	MW125S	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	213	<1	213	94.5	92.8	3,040	0.92	216	154	199	17	1,570
	MW125S	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	236	<1	236	110	110	3,540	0.07	268	170	235	16	1,880
Off-site	MW125S	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	217	<1	217	95.8	96.0	3,100	0.11	191	154	201	16	1,640
	MW125S	6/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	225	<1	225	92.7	101	2,960	4.10	225	160	222	16	1,700
	MW125S	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	228	<1	228	93.4	97.4	3,000	2.10	203	161	208	19	1,650
	MW125S	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	238	<1	238	110	108	3,520	0.88	262	176	239	16	1,810
	MW125S	13/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	227	<1	227	97.5	102	3,140	2.46	212	148	199	15	1,800
	MW125S	14/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	248	<1	248	116	113	3,730	1.37	288	186	262	16	1,880
	MW126	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	302	<1	302	35.7	36.9	1,020	1.62	45	90	73	6	604
	MW126	11/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW126	19/11/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	251	<1	251	40.0	36.4	1,170	4.60	94	106	86	10	548
	MW126	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	222	<1	222	42.0	39.4	1,250	3.21	110	111	92	10	598
	MW126	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	223	<1	223	41.5	38.9	1,230	3.18	112	108	92	10	591
	MW126	13/05/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	260	<20	260			1,200						
Off-site	MW126	14/10/2020	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<1	212	<1	212	39.2	37.4	1,180	2.23	79	93	82	9	594
	MW126	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	241	<1	241	37.1	38.5	1,140	1.88	6	102	87	10	598
	MW126	6/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	245	<1	245	33.7	37.1	1,020	4.88	<10	96	79	10	588
	MW126	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	207	<1	207	21.0	23.0	597	4.49	<50	59	48	7	365
	MW126	23/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	255	<1	255	34.6	33.7	1,030	1.29	20	87	75	8	528
	MW126	13/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	256	<1	256	31.3	36.0	930	6.91	<50	76	70	7	604
	MW126	14/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	164	<1	164	19.2	16.8	533	6.69	44	40	35	6	271
	MW127	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	260	<1	260	8.30	8.02	94	1.72	22	20	6	2	149
	MW127	11/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW127	19/11/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	295	<1	295	8.75	7.62	94	6.94	10	24	7	4	132
	MW127	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	288	<1	288	8.60	8.36	101	1.40	<5	26	8	4	145
Off-site	MW127	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	272	<1	272	8.32	7.43	100	5.62	3	14	5	4	143
	MW127	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	268	<1	268	8.68	8.05	98	3.74	27	25	8	4	139
	MW127	9/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	294	<1	294	8.74	7.68	100	6.45	2	19	6	4	141
	MW127	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	301	<1	301	8.50	9.17	85	3.84	4	26	8	5	163
	MW127	23/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	281	<1	281	8.74	7.55	96	7.28	20	20	6	4	137
	MW127	13/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	224	<1	224	7.65	8.27	94	3.93	25	17	6	4	157
	MW127	15/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	276	<1	276	8.86	8.23	103	3.66	21	22	7	3	149
	MW128D	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	12	122	<1	134	9.91	8.77	241	6.09	21	31	16	10	130
	MW128D	11/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW128D	19/11/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	6	83	<1	89	5.62	5.03	131	5.52	7	34	2	10	67
	MW128D	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	67	<1	67	5.60	5.16	145	4.03	8	34	2	10	70
	MW128D	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	76	<1	76	5.83	4.81	147	9.56	8	30	2	11	66
Off-site	MW128D	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	3	74	<1	78	6.27	5.42	161	7.20	8	40	2	12	68
	MW128D	7/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	12	62	<1	74	6.65	5.52	176	9.32	10	44	1	11	68
	MW128D	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	17	40	<1	58	6.11	6.12	168	0.13	10	53	1	12	71
	MW128D	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	74	<1	74	6.75	5.66	181	8.74	8	50	<1	10	67
	MW128D	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	57	<1	57	6.26	5.75	175	4.29	9	56	<1	10	62

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics											
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
	MW128S	**21/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	151	<1	151	6.33	5.61	113	6.02	6	39	8	7	65
	MW128S	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	153	<1	153	5.89	5.23	96	5.92	6	34	8	7	62
	MW128S	**15/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	152	<1	152	6.46	5.80	117	5.42	6	45	8	6	63
	MW129D	**10/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	144	<1	144	4.65	4.78	63	1.29	<1	55	6	4	33
	MW129D	**11/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW129D	**19/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	152	<1	152	5.07	4.82	72	2.50	<1	54	6	6	34
	MW129D	**13/05/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	<0.05	<0.05	<0.05	<1	129	<1	129	4.80	5.17	79	3.65	<1	59	7	5	35
Off-site	**MW129D**	**21/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	171	<1	171	8.69	8.00	181	4.11	8	69	12	7	78
	MW129D	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	179	<1	179	8.73	7.78	174	5.75	12	67	11	9	76
	MW129D	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	211	<1	211	12.8	13.1	284	1.25	28	97	22	12	142
	MW129D	**23/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	242	<1	242	14.0	12.2	312	6.96	16	86	20	10	137
	MW129D	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	295	17.5	15.9	390	4.93	31	91	27	10	204	
	MW129D	**15/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	255	<1	255	14.7	13.1	332	5.77	11	83	19	8	165
	MW129S	**10/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	182	10.7	10.3	238	1.64	16	88	13	7	108	
	MW129S	**11/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.39	0.39													
	MW129S	**19/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	208	<1	208	11.8	10.1	263	7.51	10	84	15	9	103
	MW129S	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	147	<1	147	11.1	9.89	277	5.70	16	77	12	9	111
	MW129S	**14/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	198	<1	198	11.6	10.6	262	4.41	12	85	16	9	111
Off-site	**MW129S**	**21/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	180	<1	180	11.3	10.3	264	4.61	11	85	14	9	107
	MW129S	**9/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	205	<1	205	12.4	10.9	284	6.36	14	87	16	10	115
	MW129S	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	196	<1	196	11.9	12.3	272	1.71	16	102	17	11	128
	MW129S	**23/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	216	12.5	11.1	280	5.94	14	89	16	10	117	
	MW129S	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	251	<1	251	14.4	12.7	315	6.01	22	81	18	8	161
	MW129S	**15/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	231	13.6	11.8	306	6.71	15	92	16	8	132	
	MW130D	**11/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	189	<1	189	8.41	7.74	160	4.19	6	47	16	8	89
	MW130D	**11/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW130D	**19/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14	<1	157	<1	157	7.63	6.90	149	5.05	14	44	11	9	82
	MW130D	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	148	<1	148	7.70	7.24	163	3.08	7	48	12	8	84
	MW130D	**14/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	144	<1	144	7.53	6.51	156	7.21	12	35	10	8	86
Off-site	**MW130D**	**21/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	143	<1	143	7.62	7.29	160	2.21	12	45	12	9	88
	MW130D	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	154	<1	154	8.06	7.06	168	6.61	12	43	11	9	87
	MW130D	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	152	<1	152	7.43	7.86	147	2.83	12	50	13	10	93
	MW130D	**23/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	157	7.76	6.82	155	6.44	12	42	10	8	85	
	MW130D	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	162	7.44	6.88	140	3.91	12	37	10	8	92	
	MW130D	**15/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	173	<1	173	7.56	7.18	141	2.56	6	44	10	8	91
	MW130S	**11/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	197	<1	197	11.9	11.0	262	3.71	26	54	24	5	143
	MW130S	**13/03/2018**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW130S	**11/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW130S	**19/11/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	205	<1	205	12.4	10.3	284	9.02	14	62	22	7	121
	MW130S	**13/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	176	<1	176	13.4	11.7	336	6.62	18	67	26	7	139
Off-site	**MW130S**	**14/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	182	<1	182	11.8	11.4	279	1.63	15	71	24	7	132
	MW130S	**21/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	176	<1	176	13.0	11.4	323	6.32	17	64	24	7	140
	MW130S	**7/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	188	<1	188	13.1	10.9	319	9.25	17	59	23	7	135
	MW130S	**20/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	189	<1	189	12.6	11.5	300	4.56	19	62	25	8	142
	MW130S	**23/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	259	<1	259	14.7	11.4	334	12.9	7	61	24	9	141
	MW130S	**12/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	199	13.3	12.6	316	2.58	20	55	25	7	176	
	MW130S	**15/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	222	<1	222	13.1	11.2	299	7.74	13	58	22	6	147
	MW132D	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0	<0.01	<0.01	<1	65	<1	65	30.4	31.6	1,010	1.99		52	129	21	410
	MW132D	**5/10/2017**								<0.01															
	MW132D	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW132D	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW132D	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW132D	**7/03/2019**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01		<0.01													
	MW132D	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.22	0.22	<1	36	<1	36	32.5	27.7	1,080	8.05	64	52	115	22	346
On-site - Other	**MW132D**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.21*	2.57	2.79	<1	269	<1	269	22.3	19.2	597	7.42	3	70	61	30	228
	MW132D	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.47*	0.83	0.92	<1	84	<1	84	28.4	27.7	898	1.26	68	61	111	26	342
	MW132D	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.13*	1.89	2.06	<1	<1	<1	<1	35.2	34.4	1,190	1.07	77	55	148	21	436
	MW132D	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.01***	4.75	5.17	<1	211	<1	211	21.5	19.8	601	4.15	16	74	61	30	237
	MW132D	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.27***	4.07	4.49	<1	220	<1	220	22.1	20.0	620	5.07	10	74	63	32	236
	MW132D	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***5.04***	8.37	9.27	<1	228	<1	228	22.2	20.0	618	5.10	8	73	62	32	240
	MW132D	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.88***	6.47	7.20	<1	218	<1	218	21.3	21.6	597	0.61	6	67	62	29	285
	MW132D	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***4.51***	7.48	8.26	<1	216	<1	216	22.0	19.9	620	5.09	9	79	62	30	231
	MW132S	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.34*	0.47	0.52	<1	56	<1	56	41.8	45.5	1,370	4.17		73	165	14	641
	MW132S	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.43	0.48													
	MW132S	**5/10/2017**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.32*															
	MW132S	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.28	0.31													
	MW132S	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.89*	1.05	1.09	<1	11	<1	11	50.7	43.2	1,730	8.01	80	63	178	16	574
On-site - Other	**MW132S**	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.60	0.66	<1	9	<1	9	55.1	52.1	1,880	2.80	89	71	217	17	695
	MW132S	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.04*	1.17	1.21													
	MW132S	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.35*	0.50	0.55	<1	6	<1	6	54.0	53.7	1,850	0.36	84	76	216	17	728
	MW132S	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.45*	0.56	0.60	<1	49	<1	49	51.8	53.8	1,760	1.91	56	91	215	27	710
	MW132S	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.34*	0.46	0.51	<1	54	<1	54	50.6	50.1	1,710	0.44	61	77	210	19	656
	MW132S	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	0.96	1.06	<1	7	<1	7	50.5	50.0	1,730	0.55	76	70	208	17	665
	MW132S	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.70*	0.92	1.00	<1	8	<1	8	51.0	56.9	1,750	5.46	71	70	221	16	800
	MW132S	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.54*	0.72	0.82	<1	5	<1	5	47.3	49.5	1,610	2.34	84	73	209	16	650
	MW134D	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0	<0.01	<0.01	<1	114	<1	114	7.98	9.21	183	7.16		38	15	15	131
	MW134D	**5/10/2017**								<0.01															
	MW134D	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW134D	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	185	<1	185	11.9	10.8	290	4.88	3	9	15	14	202
	MW134D	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.21*	0.21	0.21	<1	108	<1	108	10.6	9.33	297	6.26	2	6	13	12	176
On-site - Other	**MW134D**	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	112	<1	112	10.6	9.16	296	7.24	<1	6	13	12	172
	MW134D	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.18	0.18	<1	102	<1	102	9.94	8.67	280	6.81	<1	7	11	11	164
	MW134D	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.23	0.23	<1	131	<1	131	10.1	8.48	264	8.72	2	8	11	12	158
	MW134D	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.23	0.23	<1	114	<1	114	10.1	8.63	278	7.92	<1	7	11	13	162
	MW134D	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.16	0.16	<1	107	<1	107	10.0	8.41	280	8.84	<1	6	10	11	161
	MW134D	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	90	9.98	9.24	290	3.86	<1	3	9	10	186	
	MW134D	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	120	<1	120	12.2	10.3	343	8.41	8	6	13	14	198
	MW134S	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	72	<1	72	34.9	40.8	1,120	7.78		67	138	15	591
	MW134S	**5/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04													
	MW134S	**5/10/2017**	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.05															
	MW134S	**7/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.29	0.32													
	MW134S	**29/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.16	0.18	<1	7	<1	7	58.7	57.2	1,990	1.26	117	72	226	22	793
	MW134S	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.18	0.21	<1	9	<1	9	63.0	65.5	2,140	1.95	118	74	269	24	898
	MW134S	**12/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.17	0.20	<1	26	<1	26	62.9	59.8	2,140	2.54	96	68	245	23	819
On-site - Other	**MW134S**	**12/05/2020**	<0.05	<0.12	<0.05	<0.12	<0.12	<0.05	<0.12	*0.12*	0.15	0.17	<20	<20	<20	<20			2,100						
	MW134S	**13/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.15	0.18	<1	10	<1	10	61.0	58.8	2,060	1.83	128	68	239	24	807
	MW134S	**29/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.72*	0.94	1.00	<1	6	<1	6	63.4	63.1	2,160	0.25	112	72	250	24	880
	MW134S	**20/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.12	<1	35	<1	35	56.4	58.7	1,910	2.00	86	68	238	23	807
	MW134S	**28/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.14	<1	9	<1	9	58.0	59.6	1,960	1.42	120	70	251	25	801
	MW134S	**26/09/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.19	0.21	<1	11	<1	11	56.6	59.7	1,920	2.63	107	69	247	24	811
	MW134S	**24/04/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	12	<1	12	60.8	66.6	2,070	4.50	107	68	258	22	952
	MW134S	**25/09/2023**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.12	<1	6	<1	6	57.3	58.9	1,940	1.35	118	72	248	23	788
	MW136	**11/10/2017**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	1	234	<1	235	11.1	10.0	220	5.08	11	79	17	4	106
	MW136	**8/03/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW136	**22/10/2019**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	217	<1	217	11.9	11.8	269	0.46	<5	90	20	6	127
	MW136	**6/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	277	<1	277	14.2	12.3	306	7.11	<5	95	19	6	134
	MW136	**6/05/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	213	<1	213	13.2	12.7	317	1.74	<5	99	19	6	140
	MW136	**6/05/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	270	<20	270			260						
	MW136	**14/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	204	<1	204	12.0	11.1	273	3.65	10	79	19	6	126
	MW136	**14/10/2020**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	212	<1	212	13.0	12.0	298	3.60	15	86	19	6	139
	MW136	**14/10/2020**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	230	<20	230			260						
	MW136	**21/04/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	193	<1	193	14.2	12.9	332	4.78	48	94	21	6	146
Off-site	**MW136**	**6/09/2021**	<0.03	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	217	<1	217	14.2	13.8	340	1.54	13	100	22	7	156
	MW136	**6/09/2021**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	222	<1	222	14.2	13.4	336	2.62	13	99	21	7	152
	MW136	**6/09/2021**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW136	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	226	<1	226	15.3	15.1	361	0.58	28	103	24	8	179
	MW136	**19/04/2022**	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	1.33	1.45	<1	234	<1	234	16.2	15.7	386	1.71	32	105	24	8	190
	MW136	**19/04/2022**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics												
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										**2**															
Monitoring Area	**Location Code**	**Date**																							
Off-site	MW137	22/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.19	0.22	<1	566	<1	566	64.3	66.4	1,680	1.63	268	160	146	12	1,060
	MW137	6/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.07	0.07	<1	365	<1	365	38.9	38.2	1,030	1.00	124	118	84	10	577
	MW137	6/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.10	0.10	<1	353	<1	353	40.7	39.7	1,100	1.25	128	126	87	11	598
	MW137	6/05/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.1	<10	320	<20	320			820						
	MW137	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.25	0.28	<1	672	<1	672	87.3	87.8	2,320	0.33	403	169	195	11	1,450
	MW137	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.14	0.16	<1	393	<1	393	45.5	47.1	1,230	1.72	144	131	101	11	736
	MW137	6/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.04	0.04	<1	354	<1	354	41.0	43.0	1,110	2.34	126	134	85	11	667
	MW137	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.11	0.11	<1	635	<1	635	71.4	73.0	1,870	1.12	285	170	172	13	1,150
	MW137	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.12	0.15	<1	447	<1	447	47.0	44.8	1,230	2.35	163	120	95	10	708
	MW137	11/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.21	0.29	<1	870	<1	870	102	98.2	2,700	2.00	415	186	231	11	1,600
	MW137	11/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.20	0.28													
	MW137	11/04/2023	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	0.12	0.18													
	MW137	14/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.17	0.22	<1	625	<1	625	67.0	63.1	1,720	2.95	286	142	149	11	1,000
On-site - Other	MW138	5/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0	<0.01	<0.01	<1	251	<1	251	38	35.2	1,100	3.78		135	82	17	490
	MW138	5/10/2017								<0.01															
	MW138	5/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW138	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	250	<1	250	40.3	36.4	1,180	5.05	97	141	84	20	505
	MW138	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	226	<1	226	39.7	36.3	1,180	4.48	93	140	85	20	502
	MW138	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	230	<1	230	36.2	37.8	1,050	2.08	97	145	86	21	527
	MW138	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	176	<1	176	37.9	36.7	1,110	1.62	148	139	84	21	513
	MW138	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	94	<1	94	43.3	38.9	1,130	5.37	460	171	91	21	514
	MW138	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	111	<1	111	39.6	42.1	1,150	3.06	238	168	99	24	574
	MW138	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	245	<1	240	36.5	33.9	1,050	3.70	102	128	80	20	470
	MW138	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	247	<1	242	36.7	34.3	1,050	3.28	106	131	81	20	474
	MW138	20/09/2022	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW138	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	259	<1	259	38.3	40.0	1,100	2.07	103	127	87	18	598
	MW138	11/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	233	<1	233	37.9	37.0	1,120	1.21	81	134	86	20	523
	MW138	11/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	239	<1	239	38.5	37.0	1,120	2.06	104	134	86	20	522
	MW138	11/09/2023	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
On-site - Other	MW139	5/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.27***	3.32	3.92	<1	50	<1	50	67	71.4	2,160	3.2		35	209	11	1,200
	MW139	5/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.42	0.45													
	MW139	30/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***8.33***	11.9	13.4	<1	<1	<1	<1	50.5	55.6	1,670	4.83	163	33	174	8	907
	MW139	30/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***8.17***	11.8	13.4	<1	2	<1	2	55.7	57.6	1,850	1.74	166	35	180	8	940
	MW139	30/10/2019	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***6.29***	9.15	11.76	<10	<20					1,800						
	MW139	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.30*	0.41	0.48	<1	14	<1	14	26.2	22.6	862	7.33	75	14	59	11	385
	MW139	13/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	6	<1	6	48.7	50.3	1,560	1.62	221	27	116	8	902
	MW139	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	5	<1	5	25.2	22.0	835	6.91	77	14	55	11	379
	MW139	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	5	<1	5	25.1	22.3	831	5.88	76	14	56	11	385
	MW139	7/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***9.40***	13.6	15.6	<1	<1	<1	<1	40.2	40.2	1,330	0.05	131	25	125	12	652
	MW139	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.36	0.40	<1	2	<1	2	25.3	24.2	837	2.32	80	15	62	12	414
	MW139	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***11.9***	16.9	19.1	<1	<1	<1	<1	38.9	38.4	1,280	0.73	136	25	125	12	610
	MW139	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.22	0.26	<1	2	<1	2	23.9	26.1	786	4.41	83	14	63	10	460
	MW139	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.27	0.31	<1	3	<1	3	24.1	25.8	792	3.42	82	14	60	10	458
	MW139	12/04/2023	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.18*	0.24	0.3													
	MW139	11/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.19	0.21	<1	<1	<1	<1	24.9	22.4	830	5.37	72	14	57	11	384
On-site - Other	MW140D	4/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	303	<1	205	508	25.5	24.0	462	3.06	113	53	<1	84	442
	MW140D	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW140D	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	434	<1	434	40.3	36.3	1,080	5.14	54	43	56	32	661
	MW140D	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	43	268	<1	310	23.0	20.6	588	5.50	12	2	2	65	430
	MW140D	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	303	<1	303	22.4	22.3	551	0.07	37	2	2	67	468
	MW140D	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	**1**	381	<1	382	25.3	21.5	617	8.14	11	6	3	66	442
	MW140D	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	355	<1	355	24.7	22.0	584	5.79	56	10	3	65	451
	MW140D	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	364	<1	364	24.8	22.0	585	6.11	50	8	2	66	453
	MW140D	8/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.01	<0.05	<0.1													
	MW140D	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	381	<1	381	25.0	23.2	578	3.79	52	14	4	70	468
	MW140D	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	392	<1	386	25.4	21.3	580	8.72	62	10	3	67	433
	MW140D	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	376	<1	376	25.3	26.5	586	2.31	59	11	6	62	548
	MW140D	11/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	401	<1	401	26.6	23.0	626	7.25	46	10	4	67	471
On-site - Other	MW140S	4/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	74	<1	74	28.1	27.0	883	1.90	82	27	58	12	474
	MW140S	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW140S	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	5	<1	5	30.4	25.5	1,010	8.83	87	16	56	14	453
	MW140S	5/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	12	<1	12	30.1	26.4	997	6.45	83	17	59	15	468
	MW140S	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	**0.10**	**0.10**	<1	4	<1	4	27.2	29.0	895	3.23	91	18	64	15	517
	MW140S	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	26	<1	26	30.1	27.8	986	3.90	84	20	62	16	490
	MW140S	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	4	<1	4	28.9	28.9	971	0.09	67	18	62	15	518
	MW140S	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	7	<1	7	29.2	29.0	964	0.42	91	19	64	16	514
	MW140S	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	1	<1	1	28.4	26.2	930	4.14	104	18	60	14	459
	MW140S	20/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	4	<1	4	28.3	26.2	931	4.01	96	17	60	14	460
	MW140S	20/09/2022	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
	MW140S	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	2	<1	2	27.9	30.9	937	5.21	67	16	60	14	571
	MW140S	11/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	4	<1	4	29.2	28.0	973	2.16	82	18	63	15	495
On-site - Other	MW146	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	122	<1	122	20.1	18.8	535	3.45	125	94	26	5	272
	MW146	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
	MW146	23/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	<1	<1	<1	44.5	48.7	1,490	4.48	119	52	113	10	840
	MW146	4/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	49.6	48.7	1,680	0.86	105	49	117	8	838
	MW146	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	43.7	51.2	1,470	7.84	108	47	117	8	896
	MW146	19/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	44.8	44.8	1,520	0.02	94	40	100	7	791
	MW146	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	130	<1	130	29.6	26.0	904	6.53	74	30	55	4	457
	MW146	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	5	<1	5	38.5	39.2	1,290	0.95	96	41	81	6	698
	MW146	22/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.29	0.37	<1	54	<1	54	33.7	33.3	1,090	0.71	92	40	71	6	581
	MW146	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	22	<1	22	34.6	39.2	1,140	6.27	97	38	76	5	712
	MW146	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.13	<1	16	<1	16	38.2	35.8	1,280	3.36	88	40	79	5	624
	MW146	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.17	<1	26	<1	26	36.6	34.8	1,210	2.42	93	39	77	5	608
	MW146	13/09/2023	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.07	<0.1													
On-site - Other	MW149	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.44*	0.44	0.44	25	94	<1	119	23.2	19.4	677	8.95	82	100	30	10	268
	MW149	6/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***15.5***	15.6	15.8													
	MW149	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	17	<1	17	44.9	40.0	1,500	5.74	110	33	138	17	612
	MW149	4/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	5	<1	5	41.9	42.0	1,410	0.05	98	29	147	19	642
	MW149	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	4	<1	4	39.6	45.4	1,320	6.73	112	31	155	19	703
	MW149	20/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	4	<1	4	43.2	40.3	1,450	3.49	108	27	137	18	626
	MW149	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***15.7***	16.1	16.4	<1	380	<1	380	32.7	30.3	645	3.81	331	84	94	10	416
	MW149	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.27	0.27	<1	9	<1	9	43.1	44.8	1,440	1.90	112	32	153	20	692
	MW149	19/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***18.5***	18.9	19.2	<1	157	<1	157	39.4	37.2	1,160	2.79	170	58	128	15	539
	MW149	19/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***19.3***	19.7	20.0	<1	173	<1	173	32.2	29.2	917	4.87	137	58	98	12	412
	MW149	19/09/2022	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***17***	17.27	17.52													
	MW149	17/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.41	0.41	<1	37	<1	37	47.6	48.3	1,580	0.71	110	38	152	15	770
	MW149	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.28	0.28	<1	51	<1	51	42.3	41.7	1,390	0.67	98	38	146	17	629
	MW150	10/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.31	0.33	41	<1	534	574	18.9	17.5	234	3.89	42	223	<1	12	140
	MW150	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.81*	2.26	2.46													
	MW150	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.06***	2.47	2.64	<1	62	<1	62	17.6	16.3	509	3.91	98	31	12	8	312

Table 1 Groundwater analytical results

			PFAS - Perfluoroalkyl Sulfonamides							PFAS			Inorganics											
			Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-ethyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting			0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.01	0.01	0.01	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water										*0.07*															
PFAS NEMP 2020 Recreational Water										***2***															
Monitoring Area	**Location Code**	**Date**																							
On-site - Other	MW150	4/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.45***	2.95	3.25	<1	128	<1	128	20.1	18.3	554	4.60	91	53	23	8	312
	MW150	12/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.13***	2.57	2.77	<1	239	<1	239	21.7	19.4	520	5.52	107	63	27	8	318
	MW150	20/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.78***	3.34	3.64	<1	171	<1	171	21.7	18.8	581	7.02	90	61	25	8	311
	MW150	7/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.17***	2.67	2.89	<1	199	<1	199	23.3	20.1	604	7.41	109	72	27	8	323
	MW150	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.36***	2.81	3.04	<1	140	<1	140	21.5	21.3	581	0.43	110	58	31	9	359
	MW150	19/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.12***	3.63	3.93	<1	156	<1	156	21.9	19.3	592	6.34	102	52	29	8	325
	MW150	19/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.43***	4.02	4.35	<1	181	<1	181	22.3	19.7	588	6.27	103	58	29	8	327
	MW150	19/09/2022	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***2.3***	2.68	2.93													
	MW150	17/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.21***	2.59	2.82	<1	133	<1	133	21.5	22.9	579	3.33	119	45	30	7	415
	MW150	13/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.25***	2.71	2.94	<1	123	<1	123	22.4	18.8	621	8.80	117	42	28	8	326
Source Area J - Former Fuel Farm	MW155S	13/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.23***	3.23	3.58	<1	16	<1	16	62.1	60.3	2,020	1.47	230	65	214	23	893
	MW155S	29/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.16***	4.62	5.02	<1	16	<1	16	56.2	58.3	1,860	1.88	162	60	195	22	890
	MW155S	20/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.73*	2.59	2.86	<1	21	<1	21	52.6	55.1	1,720	2.34	175	58	189	20	831
	MW155S	28/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***3.54***	4.82	5.20	<1	17	<1	17	71.1	66.4	2,330	3.45	242	72	244	26	966
	MW155S	22/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***2.90***	4.05	4.49	<1	15	<1	15	57.7	60.9	1,890	2.71	197	67	219	23	896
	MW155S	24/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.57*	2.49	2.78	<1	15	<1	15	66.9	73.4	2,180	4.57	247	69	251	21	1,120
	MW155S	25/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*1.69*	2.59	2.89	<1	15	<1	15	67.5	66.4	2,210	0.85	234	75	247	23	959
Source Area R - RAAF Base Pearce Landfill	MW202	11/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***96.6***	126	137	<1	59	<1	59	6.74	5.83	170	7.28	37	3	11	3	108
	MW202	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***107***	137	147													
	MW202	22/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***82.0***	112	123	<1	54	<1	54	7.02	6.47	182	4.11	39	4	11	4	121
	MW202	22/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***82.4***	112	124	<1	55	<1	55	6.99	6.43	180	4.18	39	4	11	4	120
	MW202	22/10/2019	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***77***	95.5	107.4	<10	59					190						
	MW202	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***52.9***	75.7	84.3										4	12	4	119
	MW202	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***54.2***	77.3	85.8										4	12	4	121
	MW202	14/10/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***40***	60.3	67.5	<20	55	<20	55			160						
	MW202	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***34.5***	49.6	54.7	<1	40	<1	40	7.89	6.72	222	8.02	40	4	13	4	123
	MW202	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***34.3***	49.2	54.4	<1	40	<1	40	7.89	6.72	222	8.02	40	4	13	4	123
	MW202	21/04/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	***41***	56.96	63.17													
	MW202	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***26.8***	37.6	42.2	<1	43	<1	43	7.90	6.59	221	9.06	39	4	13	4	120
	MW202	19/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***163***	272	297	<1	159	<1	159	13.4	15.3	238	6.66	167	30	57	10	203
	MW202	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***592***	927	1,010	<1	168	<1	168	9.59	9.48	150	0.53	96	43	39	5	92
	MW202	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***307***	492	541	<1	231	<1	231	19.9	29.9	246	20.0	402	56	179	14	276
	MW202	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***430***	690	758													
	MW202	12/04/2023	<0.05	<0.5	<0.05	<0.05	<0.3	<0.05	<0.05	***337.4***	552.4	632.1													
	MW202	19/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	***201***	320	353	<1	148	<1	148	16.5	18.2	269	4.83	285	39	103	13	170
Source Area R - RAAF Base Pearce Landfill	MW205	11/10/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	59	<1	59	16.7	15.4	549	3.90	2	9	40	14	261
	MW205	7/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
	MW205	22/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	82	<1	82	18.9	17.2	612	4.86	1	11	42	18	292
	MW205	4/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	66	<1	66	19.4	17.0	638	6.40	2	11	44	18	285
	MW205	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01										10	49	22	355
	MW205	14/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05										12	51	22	348
	MW205	14/10/2020	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<20	76	<20	76			670						
	MW205	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	<1	<1	<1	17.4	15.1	565	7.27	72	9	42	20	245
	MW205	8/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	49	<1	49	22.0	18.6	740	8.33	8	12	44	21	319
	MW205	19/04/2022	<0.03	<0.05	<0.03	<0.05	<0.05	<0.03	<0.05	***0.11***	0.15	***0.15***	<1	62	<1	62	20.3	18.1	666	5.68	13	10	50	21	298
	MW205	21/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	58	<1	58	25.2	22.5	849	5.77	6	12	62	25	371
	MW205	19/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	120	<1	120	30.3	29.3	988	1.65	2	17	83	30	480
On-site - Other	MW218	31/10/2016	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			1.43	<1	89	<1	89			30		20	3	1	1	66
	MW218	18/09/2017	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.82*	0.84	0.84	<1	100	<1	100	3.06	2.77	29	5.08	12	6	2	<1	53
	MW218	6/03/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.85*	0.87	0.87													
	MW218	29/10/2019	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.72*	0.72	0.72	<1	91	<1	91	3.12	2.85	33	4.50	18	1	1	1	62
	MW218	13/05/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	14	<1	14	8.72	7.42	280	8.07	26	3	15	8	134
	MW218	22/10/2020	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.65*	0.65	0.65	<1	77	<1	77	2.82	2.96	32	2.52	18	2	2	<1	62
	MW218	21/04/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.51	0.51	<1	71	<1	71	2.96	3.00	40	0.59	20	1	2	<1	64
	MW218	9/09/2021	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.74*	0.75	0.75	<1	85	<1	85	3.10	3.04	37	0.94	17	4	3	1	59
	MW218	20/04/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	0.56	0.56	<1	87	<1	87	3.28	3.37	40	1.31	20	<1	1	1	75
	MW218	22/09/2022	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.78*	0.81	0.81	<1	87	<1	87	3.04	3.12	33	1.29	18	3	2	1	64
	MW218	12/04/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	98	<1	98	3.42	3.13	35	4.46	23	<1	<1	<1	72
	MW218	19/09/2023	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.49*	0.49	0.49	<1	66	<1	66	2.80	3.05	34	4.30	25	5	2	1	60

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT003	**13/05/2016**	**Bore 3**	**Normal**	**EP1604331**	<0.02		0.19		<0.01	<0.02			0.02	<0.02	<0.01	<0.02	<0.02	<0.05
POT003	**17/01/2017**	**BORE 3**	**Normal**	**ES1702578**	0.04	0.04	0.37	<0.02	0.03	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**17/01/2017**	**Bore_FD01**	**Field Duplicate**	**EP1700464**	0.048		0.41		0.03		<0.01	<0.002	0.043	0.002	0.008			
POT003	**17/01/2017**	**BORE-FS01**	**Interlab Duplicate**	**160520**			0.18		0.01						<0.01			
POT003	**4/09/2017**	**BORE 3**	**Normal**	**EP1709696**	<0.02	<0.02	0.13	<0.02	0.01	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**11/10/2018**	**0967_POT003_181011**	**Normal**	**EP1811853**	0.03	0.04	0.26	<0.02	0.02	<0.02	<0.1	<0.02	0.06	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**5/03/2019**	**0967_POT003_190305**	**Normal**	**EP1902007**	0.03	0.03	0.23	<0.02	0.02	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02
POT003	**7/11/2019**	**0967_POT003_191107**	**Normal**	**EP1911624**	<0.02	<0.02	0.22	<0.02	0.03	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**15/05/2020**	**0967_POT003**	**Normal**	**EP2005031**	<0.02	0.02	0.10	<0.02	0.01	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**14/10/2020**	**0967_POT003_201014**	**Normal**	**EP2011168**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**21/04/2021**	**0967_POT003_210421**	**Normal**	**EP2104359**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**14/09/2021**	**0967_POT003_210914**	**Normal**	**EP2110833**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**27/04/2022**	**0967_POT003_220427**	**Normal**	**EP2204935**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**22/09/2022**	**0967_POT003_220922**	**Normal**	**EP2212306**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**19/04/2023**	**0967_POT003_230419**	**Normal**	**EP2305003**	<0.02	<0.02	0.09	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT003	**15/09/2023**	**0967_POT003_230915**	**Normal**	**EP2312802**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**16/05/2016**	**Bore 9**	**Normal**	**EP1604391**	<0.02		0.04		0.07	<0.02			<0.02	<0.02	<0.01	<0.02	<0.02	<0.05
POT009	**17/01/2017**	**BORE 9**	**Normal**	**ES1702350**	<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**6/09/2017**	**BORE 9**	**Normal**	**EP1709750**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**6/09/2017**	**WFD_OS_06**	**Field Duplicate**	**EP1709751**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**6/09/2017**	**WFS_OS_06**	**Interlab Duplicate**	**175174**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT009	**22/10/2018**	**0967_POT009_181022**	**Normal**	**EP1812369**	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**8/03/2019**	**0967_POT009_190308**	**Normal**	**EP1902148**	<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**1/11/2019**	**0967_POT009_191101**	**Normal**	**EP1911358**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**11/05/2020**	**0967_POT009_200511**	**Normal**	**EP2004775**	<0.02	<0.02	0.04	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**12/10/2020**	**0967_POT009_201012**	**Normal**	**EP2011005**	<0.02	<0.02	0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**22/04/2021**	**0967_POT009_210422**	**Normal**	**EP2104413**	<0.02	<0.02	0.05	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**13/09/2021**	**0967_POT009_210913**	**Normal**	**EP2110739**	<0.02	<0.02	0.04	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**22/04/2022**	**0967_POT009_220422**	**Normal**	**EP2204763**	<0.02	<0.02	0.03	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**19/09/2022**	**0967_POT009_220919**	**Normal**	**EP2212053**	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**12/04/2023**	**0967_POT009_230412**	**Normal**	**EP2304606**	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**12/04/2023**	**0967_QC111_230412**	**Field Duplicate**	**EP2304606**	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT009	**12/04/2023**	**0967_QC211_230412**	**Interlab Duplicate**	**982488**	<0.01	<0.01	0.02	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT009	**22/09/2023**	**0967_POT009_230922**	**Normal**	**EP2313224**	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**2/08/2016**	**BORE 14**	**Normal**	**ES1617154**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**4/09/2017**	**BORE 14**	**Normal**	**EP1709689**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**19/03/2019**	**0967_POT014_190319**	**Normal**	**EP1902512**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**28/10/2019**	**0967_POT014_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**11/05/2020**	**0967_POT014_200511**	**Normal**	**EP2004758**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**13/10/2020**	**0967_POT014_201013**	**Normal**	**EP2011040**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**27/04/2021**	**0967_POT014_210427**	**Normal**	**EP2104540**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**14/09/2021**	**0967_POT014_210914**	**Normal**	**EP2110818**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**2/05/2022**	**0967_POT014_220502**	**Normal**	**EP2205160**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**22/09/2022**	**0967_POT014_220922**	**Normal**	**EP2212302**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**18/04/2023**	**0967_POT014_230418**	**Normal**	**EP2304919**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT014	**18/09/2023**	**0967_POT014_230918**	**Normal**	**EP2313011**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**2/08/2016**	**BORE 15**	**Normal**	**ES1617155**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**4/09/2017**	**BORE 15**	**Normal**	**EP1709690**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**30/10/2018**	**0967_POT015_181030**	**Normal**	**EP1812720**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**19/03/2019**	**0967_POT015_190319**	**Normal**	**EP1902513**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**28/10/2019**	**0697_POT015_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**15/05/2020**	**0967_POT015_200515**	**Normal**	**EP2005013**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**27/04/2021**	**0967_POT015_210427**	**Normal**	**EP2104539**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**14/09/2021**	**0967_POT015_210914**	**Normal**	**EP2110819**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**2/05/2022**	**0967_POT015_220502**	**Normal**	**EP2205161**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**23/09/2022**	**0967_POT015_220923**	**Normal**	**EP2212392**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**14/04/2023**	**0967_POT015_230414**	**Normal**	**EP2304736**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**14/09/2023**	**0967_POT015_230914**	**Normal**	**EP2312720**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**14/09/2023**	**0967_QC115_230914**	**Field Duplicate**	**EP2312720**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT015	**14/09/2023**	**0967_QC215_230914**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT018	**4/08/2016**	**BORE 18**	**Normal**	**ES1617251**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**4/09/2017**	**BORE 18**	**Normal**	**EP1709693**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**11/04/2019**	**0967_POT018_190411**	**Normal**	**EP1903505**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**1/11/2019**	**0967_POT018_191101**	**Normal**	**EP1911356**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**11/05/2020**	**0967_POT018_200511**	**Normal**	**EP2004773**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**12/10/2020**	**0967_POT18_201012**	**Normal**	**EP2011002**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**19/04/2021**	**0967_POT018_210419**	**Normal**	**EP2104216**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**19/04/2021**	**0967_QC103_210419**	**Field Duplicate**	**EP2104216**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**13/09/2021**	**0967_POT018_210913**	**Normal**	**EP2110738**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**27/04/2022**	**0967_POT018_220427**	**Normal**	**EP2204926**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**20/09/2022**	**0967_POT018_220920**	**Normal**	**EP2212156**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT018	**12/04/2023**	**0967_POT018_230412**	**Normal**	**EP2304607**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**12/04/2023**	**0967_QC112_230412**	**Field Duplicate**	**EP2304607**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT018	**12/04/2023**	**0967_QC212_230412**	**Interlab Duplicate**	**982488**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT019	**4/08/2016**	**BORE 19**	**Normal**	**ES1617257**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**18/01/2017**	**BORE 19**	**Normal**	**ES1702569**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**4/09/2017**	**BORE 19**	**Normal**	**EP1709695**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**4/09/2017**	**WFD_OS_04**	**Field Duplicate**	**EP1709698**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**4/09/2017**	**WFS_OS_04**	**Interlab Duplicate**	**175100**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT019	**15/10/2018**	**0967_POT019_181015**	**Normal**	**EP1811982**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**5/03/2019**	**0967_POT019_190305**	**Normal**	**EP1902009**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**1/11/2019**	**0967_POT019_191101**	**Normal**	**EP1911357**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**11/05/2020**	**0967_POT019_200511**	**Normal**	**EP2004772**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**12/10/2020**	**0967_POT019_201012**	**Normal**	**EP2011001**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**19/04/2021**	**0967_POT019_210419**	**Normal**	**EP2104206**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**13/09/2021**	**0967_POT019_210913**	**Normal**	**EP2110737**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**26/04/2022**	**0967_POT019_220426**	**Normal**	**EP2204838**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**20/09/2022**	**0967_POT019_220920**	**Normal**	**EP2212159**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**14/04/2023**	**0967_POT019_230414**	**Normal**	**EP2304752**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT019	**18/09/2023**	**0967_POT019_230918**	**Normal**	**EP2312967**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**4/08/2016**	**BORE 20**	**Normal**	**ES1617258**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**6/09/2017**	**BORE 20**	**Normal**	**EP1709741**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**30/10/2018**	**0967_POT020_181030**	**Normal**	**EP1812724**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**13/05/2020**	**0967_POT020_200513**	**Normal**	**EP2004876**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**13/10/2020**	**0967_POT020_201013**	**Normal**	**EP2011048**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**22/04/2021**	**0967_POT020_210422**	**Normal**	**EP2104414**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**17/09/2021**	**0967_POT020_210917**	**Normal**	**EP2111023**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**16/09/2022**	**0967_POT020_220916**	**Normal**	**EP2211988**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**19/04/2023**	**0967_POT020_230419**	**Normal**	**EP2304999**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT020	**18/09/2023**	**0967_POT020_230918**	**Normal**	**EP2312968**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**4/08/2016**	**BORE 21**	**Normal**	**ES1617259**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**4/08/2016**	**FD04**	**Field Duplicate**	**EP1607114**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**4/08/2016**	**FS04**	**Interlab Duplicate**	**184062**	<0.01		<0.01		<0.01	<0.02	<0.02		<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT021	**7/09/2017**	**BORE 21**	**Normal**	**EP1709827**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**11/10/2018**	**0967_POT021_181011**	**Normal**	**EP1811856**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**11/10/2018**	**0967_QC101_181011**	**Field Duplicate**	**EP1811871**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**11/10/2018**	**0967_QC201_181011**	**Interlab Duplicate**	**217391**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT021	**1/11/2019**	**0967_POT021_191101**	**Normal**	**EP1911353**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**29/10/2020**	**0967_POT021_201029**	**Normal**	**EP2011830**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**27/04/2021**	**0967_POT021_210427**	**Normal**	**EP2104543**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**14/09/2021**	**0967_POT021_210914**	**Normal**	**EP2110831**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**27/04/2022**	**0967_POT021_220427**	**Normal**	**EP2204928**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**21/09/2022**	**0967_POT021_220921**	**Normal**	**EP2212238**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**14/04/2023**	**0967_POT021_230414**	**Normal**	**EP2304754**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT021	**18/09/2023**	**0967_POT021_230918**	**Normal**	**EP2312954**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**17/01/2017**	**BORE 27**	**Normal**	**ES1702585**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**5/09/2017**	**BORE 27**	**Normal**	**EP1709674**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**15/10/2018**	**0967_POT027_181015**	**Normal**	**EP1811983**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**5/03/2019**	**0967_POT027_190305**	**Normal**	**EP1902010**	<0.02	<0.02	0.04	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**1/11/2019**	**0967_POT027_191101**	**Normal**	**EP1911345**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**11/05/2020**	**0967_POT027_200511**	**Normal**	**EP2004765**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**12/10/2020**	**0967_POT027_201012**	**Normal**	**EP2011003**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**20/04/2021**	**0967_POT027_210420**	**Normal**	**EP2104283**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**14/09/2021**	**0967_POT027_210914**	**Normal**	**EP2110827**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**27/04/2022**	**0967_POT027_220427**	**Normal**	**EP2204931**	<0.02	<0.02	0.05	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**26/09/2022**	**0967_POT027_220926**	**Normal**	**EP2212406**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**14/04/2023**	**0967_POT027_230414**	**Normal**	**EP2304756**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT027	**18/09/2023**	**0967_POT027_230918**	**Normal**	**EP2312955**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**17/01/2017**	**BORE 29**	**Normal**	**ES1702577**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**6/09/2017**	**BORE 29**	**Normal**	**EP1709743**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**12/10/2018**	**0967_POT029_181012**	**Normal**	**EP1811920**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**7/03/2019**	**0967_POT029_190307**	**Normal**	**EP1902132**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**28/10/2019**	**0967_POT029_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**15/05/2020**	**0967_POT029_200515**	**Normal**	**EP2005016**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**13/10/2020**	**0967_POT029_201013**	**Normal**	**EP2011046**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**22/04/2021**	**0967_POT029_210422**	**Normal**	**EP2104415**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**14/09/2021**	**0967_POT029_210914**	**Normal**	**EP2110820**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**22/04/2022**	**0967_POT029_220422**	**Normal**	**EP2204755**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**22/04/2022**	**0967_QC114_220422**	**Field Duplicate**	**EP2204755**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**22/04/2022**	**0967_QC214_220422**	**Interlab Duplicate**	**882822**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT029	**19/09/2022**	**0967_POT029_220919**	**Normal**	**EP2212057**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**17/04/2023**	**0967_POT029_230417**	**Normal**	**EP2304857**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT029	**22/09/2023**	**0967_POT029_230922**	**Normal**	**EP2313225**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**17/01/2017**	**BORE 30**	**Normal**	**ES1702579**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT030	**8/09/2017**	**BORE 30**	**Normal**	**EP1709924**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**11/10/2018**	**0967_POT030_181011**	**Normal**	**EP1811864**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**6/06/2019**	**0967_POT030_190606**	**Normal**	**EP1905529**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**11/05/2020**	**0967_POT030_200511**	**Normal**	**EP2004764**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**6/11/2020**	**0967_POT030_201106**	**Normal**	**EP2012226**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**20/04/2021**	**0967_POT030_210420**	**Normal**	**EP2104285**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**20/04/2021**	**0967_QC107_210420**	**Field Duplicate**	**EP2104285**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**20/04/2021**	**0967_QC207_210420**	**Interlab Duplicate**	**789529**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT030	**21/09/2021**	**0967_POT030_210921**	**Normal**	**EP2111151**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**27/04/2022**	**0967_POT030_220427**	**Normal**	**EP2204917**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**21/09/2022**	**0967_POT030_220921**	**Normal**	**EP2212237**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**14/04/2023**	**0967_POT030_230414**	**Normal**	**EP2304744**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT030	**22/09/2023**	**0967_POT030_230922**	**Normal**	**EP2313217**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**17/01/2017**	**BORE 31**	**Normal**	**ES1702580**	<0.02	<0.02	0.23	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/09/2017**	**Bore 31_purged**	**Normal**	**EP1709676**	<0.02	<0.02	0.05	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/09/2017**	**BORE 31**	**Normal**	**EP1709676**	<0.02	<0.02	0.06	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/09/2017**	**BORE 31**	**Normal**	**EP1710999**	<0.02	<0.02	0.06	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/09/2017**	**WFD_OS_05**	**Field Duplicate**	**EP1709678**	<0.02	<0.02	0.05	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/09/2017**	**WFS_OS_05**	**Interlab Duplicate**	**175100**	<0.01	<0.01	0.07	<0.01	0.06	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT031	**11/10/2018**	**0967_POT031_181011**	**Normal**	**EP1811868**	<0.02	<0.02	0.13	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**5/03/2019**	**0967_POT031_190305**	**Normal**	**EP1902011**	<0.02	<0.02	0.15	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**28/10/2019**	**0967_POT031_191028**	**Normal**	**EP1911093**	<0.02	<0.02	0.09	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**11/05/2020**	**0967_POT031_200511**	**Normal**	**EP2004769**	<0.02	<0.02	0.11	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**13/10/2020**	**0967_POT031_201013**	**Normal**	**EP2011059**	<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**20/04/2021**	**0967_POT031_210420**	**Normal**	**EP2104284**	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**13/09/2021**	**0967_POT031_210913**	**Normal**	**EP2110736**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**22/04/2022**	**0967_POT031_220422**	**Normal**	**EP2204760**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**19/09/2022**	**0967_POT031_220919**	**Normal**	**EP2212063**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**19/09/2022**	**0967_QC108_220919**	**Field Duplicate**	**EP2212063**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**19/09/2022**	**0967_QC208_220919**	**Interlab Duplicate**	**926012**	<0.01	<0.01	0.03	<0.01	0.02	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT031	**14/04/2023**	**0967_POT031_230414**	**Normal**	**EP2304745**	<0.02	<0.02	0.07	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT031	**19/09/2023**	**0967_POT031_230919**	**Normal**	**EP2312973**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**17/01/2017**	**BORE 32**	**Normal**	**ES1702582**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**4/09/2017**	**BORE 32**	**Normal**	**EP1709701**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**10/10/2018**	**0967_POT032_181010**	**Normal**	**EP1811772**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**5/03/2019**	**0967_POT032_190305**	**Normal**	**EP1902012**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**28/10/2019**	**0967_POT032_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**15/05/2020**	**0967_POT032_200515**	**Normal**	**EP2005030**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**13/10/2020**	**0967_POT032_201013**	**Normal**	**EP2011061**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**22/04/2021**	**0967_POT032_210422**	**Normal**	**EP2104417**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**13/09/2021**	**0967_POT032_210913**	**Normal**	**EP2110743**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**13/09/2021**	**0967_QC101_210913**	**Field Duplicate**	**EP2110743**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**13/09/2021**	**0967_QC201_210913**	**Interlab Duplicate**	**824978**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT032	**27/04/2022**	**0967_POT032_220427**	**Normal**	**EP2204918**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**19/09/2022**	**0967_POT032_220919**	**Normal**	**EP2212061**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**13/04/2023**	**0967_POT032_230413**	**Normal**	**EP2304672**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**14/09/2023**	**0967_POT032_230914**	**Normal**	**EP2312719**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**14/09/2023**	**0967_QC113_230914**	**Field Duplicate**	**EP2312719**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT032	**14/09/2023**	**0967_QC213_230914**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT040	**31/01/2017**	**Bore 40**	**Normal**	**EP1700994**	<0.02	<0.02	0.05	<0.02	0.13	<0.02	<0.1	0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02
POT040	**22/10/2018**	**0967_POT040_181022**	**Normal**	**EP1812361**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**5/03/2019**	**0967_POT040_190305**	**Normal**	**EP1902014**	0.02	<0.02	0.05	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02
POT040	**28/10/2019**	**0967_POT040_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**15/05/2020**	**0967_POT040**	**Normal**	**EP2005024**	<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**14/10/2020**	**0967_POT040_201014**	**Normal**	**EP2011159**	<0.02	<0.02	0.05	<0.02	0.04	<0.02	0.2	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**20/04/2021**	**0967_POT040_210420**	**Normal**	**EP2104288**	<0.02	<0.02	0.07	<0.02	0.15	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT040	**14/09/2021**	**0967_POT040_210914**	**Normal**	**EP2110821**	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**22/04/2022**	**0967_POT040_220422**	**Normal**	**EP2204758**	<0.02	<0.02	0.04	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**19/09/2022**	**0967_POT040_220919**	**Normal**	**EP2212058**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT040	**14/04/2023**	**0967_POT040_230414**	**Normal**	**EP2304738**	<0.02	<0.02	0.07	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT040	**22/09/2023**	**0967_POT040_230922**	**Normal**	**EP2313223**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**31/01/2017**	**Bore 42**	**Normal**	**EP1700990**	<0.02	<0.02	0.05	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**5/09/2017**	**BORE 42**	**Normal**	**EP1709675**	<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**18/10/2018**	**0967_POT042_181018**	**Normal**	**EP1812173**	<0.02	<0.02	0.04	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**8/03/2019**	**0967_POT042_190308**	**Normal**	**EP1902149**	<0.02	<0.02	0.04	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**8/03/2019**	**0967_QC119_190308**	**Field Duplicate**	**EP1902146**	<0.02	<0.02	0.05	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**8/03/2019**	**0967_QC219_190308**	**Interlab Duplicate**	**223472**	<0.01	<0.01	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT042	**1/11/2019**	**0967_POT042_191101**	**Normal**	**EP1911354**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**15/05/2020**	**0967_POT042**	**Normal**	**EP2005014**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**13/10/2020**	**0967_POT042_201013**	**Normal**	**EP2011076**	<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**22/04/2021**	**0967_POT042_210422**	**Normal**	**EP2104411**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**16/09/2021**	**0967_POT042_210916**	**Normal**	**EP2110928**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**26/04/2022**	**0967_POT042_220426**	**Normal**	**EP2204844**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT042	**22/09/2022**	**0967_POT042_220922**	**Normal**	**EP2212308**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**14/04/2023**	**0967_POT042_230414**	**Normal**	**EP2304737**	0.03	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT042	**22/09/2023**	**0967_POT042_230922**	**Normal**	**EP2313222**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**31/01/2017**	**Bore 44**	**Normal**	**EP1700998**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**5/09/2017**	**BORE 44**	**Normal**	**EP1709672**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**6/11/2018**	**0967_POT044_181106**	**Normal**	**EP1813013**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**7/03/2019**	**0967_POT044_190307**	**Normal**	**EP1902133**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**15/05/2020**	**0967_POT044**	**Normal**	**EP2005015**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**13/10/2020**	**0967_POT044_201013**	**Normal**	**EP2011087**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**22/04/2021**	**0967_POT044_210422**	**Normal**	**EP2104412**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**13/09/2021**	**0967_POT044_210913**	**Normal**	**EP2110748**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**27/04/2022**	**0967_POT044_220427**	**Normal**	**EP2204920**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**19/09/2022**	**0967_POT044_220919**	**Normal**	**EP2212056**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**19/09/2022**	**0967_QC102_220919**	**Field Duplicate**	**EP2212056**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**19/09/2022**	**0967_QC202_220919**	**Interlab Duplicate**	**926012**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT044	**17/04/2023**	**0967_POT044_230417**	**Normal**	**EP2304860**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT044	**22/09/2023**	**0967_POT044_230922**	**Normal**	**EP2313226**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**8/02/2018**	**BORE 52**	**Normal**	**EP1802186**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**19/10/2018**	**0967_POT052_181019**	**Normal**	**EP1812279**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**19/10/2018**	**0967_QC110_181019**	**Field Duplicate**	**EP1812271**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**19/10/2018**	**0967_QC210_181019**	**Interlab Duplicate**	**217646**	<0.01	<0.01	0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT052	**7/03/2019**	**0967_POT052_190307**	**Normal**	**EP1902134**	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT052	**1/11/2019**	**0967_POT052_191101**	**Normal**	**EP1911355**	<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**15/05/2020**	**0967_POT052_200515**	**Normal**	**EP2005020**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**14/10/2020**	**0967_POT052_201014**	**Normal**	**EP2011161**	<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**21/04/2021**	**0967_POT052_210421**	**Normal**	**EP2104356**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**13/09/2021**	**0967_POT052_210913**	**Normal**	**EP2110747**	0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**26/04/2022**	**0967_POT052_220426**	**Normal**	**EP2204834**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**22/09/2022**	**0967_POT052_220922**	**Normal**	**EP2212307**	<0.02	<0.02	0.32	<0.02	0.04	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**14/04/2023**	**0967_POT052_230414**	**Normal**	**EP2304746**	<0.02	<0.02	0.15	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT052	**19/09/2023**	**0967_POT052_230919**	**Normal**	**EP2312974**	<0.02	<0.02	0.15	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**15/05/2020**	**0967_POT070_28m**	**Normal**	**EP2005021**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**29/10/2020**	**0967_POT070_D_201029**	**Normal**	**EP2011879**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**20/04/2021**	**0967_POT070D_210420**	**Normal**	**EP2104287**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**21/09/2021**	**0967_POT070_210921**	**Normal**	**EP2111149**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**22/04/2022**	**0967_POT070D_220422**	**Normal**	**EP2204756**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**21/09/2022**	**0967_POT070D_220921**	**Normal**	**EP2212235**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**17/04/2023**	**0967_POT070D_230417**	**Normal**	**EP2304858**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070D	**18/09/2023**	**0967_POT070D_230918**	**Normal**	**EP2312964**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**20/01/2018**	**FD01_SN_20180219**	**Field Duplicate**	**EP1802620**	<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**15/02/2018**	**BORE 70**	**Normal**	**EP1802601**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**22/10/2018**	**0967_POT070_181022**	**Normal**	**EP1812366**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**12/03/2019**	**0967_POT070_190312**	**Normal**	**EP1902285**	<0.02	<0.02	0.07	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**1/11/2019**	**0967_POT070_191101**	**Normal**	**EP1911352**	<0.02	<0.02	0.05	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**15/05/2020**	**0967_POT070_16m_200515**	**Normal**	**EP2005022**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**29/10/2020**	**0967_POT070_S_201029**	**Normal**	**EP2011879**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**20/04/2021**	**0967_POT070S_210420**	**Normal**	**EP2104287**	<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**22/04/2022**	**0967_POT070S_220422**	**Normal**	**EP2204756**	<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**22/09/2022**	**0967_POT070S_220922**	**Normal**	**EP2212303**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**17/04/2023**	**0967_POT070S_230417**	**Normal**	**EP2304858**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT070S	**18/09/2023**	**0967_POT070S_230918**	**Normal**	**EP2312964**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**15/02/2018**	**BORE 73**	**Normal**	**EP1802603**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**17/10/2018**	**0967_POT073_181017**	**Normal**	**EP1812168**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**17/10/2018**	**0967_QC109_181017**	**Field Duplicate**	**EP1812171**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**17/10/2018**	**0967_QC209_181017**	**Interlab Duplicate**	**217514**	<0.01	<0.01	0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT073	**5/03/2019**	**0967_POT073_190305**	**Normal**	**EP1902015**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**19/11/2019**	**0967_POT073_191119**	**Normal**	**EP1912129**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**11/05/2020**	**0967_POT073_200511**	**Normal**	**EP2004770**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**29/10/2020**	**0967_POT073_201029**	**Normal**	**EP2011828**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**19/04/2021**	**0967_POT073_210419**	**Normal**	**EP2104212**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**13/09/2021**	**0967_POT073_210913**	**Normal**	**EP2110744**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**13/09/2021**	**0967_QC102_210913**	**Field Duplicate**	**EP2110744**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**13/09/2021**	**0967_QC202_210913**	**Interlab Duplicate**	**824978**	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT073	**26/04/2022**	**0967_POT073_220426**	**Normal**	**EP2204841**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**6/10/2022**	**0967_POT073_221006**	**Normal**	**EP2213054**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**14/04/2023**	**0967_POT073_230414**	**Normal**	**EP2304757**	0.05	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT073	**19/09/2023**	**0967_POT073_230919**	**Normal**	**EP2312975**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**15/02/2018**	**BORE 76**	**Normal**	**EP1802606**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**6/11/2018**	**0967_POT076_181106**	**Normal**	**EP1813008**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**1/11/2019**	**0967_POT076_191101**	**Normal**	**EP1911350**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**11/05/2020**	**0967_POT076_200511**	**Normal**	**EP2004767**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**13/10/2020**	**0967_POT076_201013**	**Normal**	**EP2011090**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**27/04/2021**	**0967_POT076_210427**	**Normal**	**EP2104542**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT076	**13/09/2021**	**0967_POT076_210913**	**Normal**	**EP2110757**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**26/04/2022**	**0967_POT076_220426**	**Normal**	**EP2204837**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**22/09/2022**	**0967_POT076_220922**	**Normal**	**EP2212301**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**14/04/2023**	**0967_POT076_230414**	**Normal**	**EP2304733**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT076	**22/09/2023**	**0967_POT076_230922**	**Normal**	**EP2313215**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**16/02/2018**	**BORE 80**	**Normal**	**EP1802610**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**29/10/2018**	**0967_POT080_181029**	**Normal**	**EP1812673**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**7/03/2019**	**0967_POT080_190307**	**Normal**	**EP1902135**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**18/11/2019**	**0967_POT080_191118**	**Normal**	**EP1912048**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**27/05/2020**	**0967_POT080_200527**	**Normal**	**EP2005437**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**29/10/2020**	**0967_POT080_201029**	**Normal**	**EP2011873**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**22/04/2021**	**0967_POT080_210422**	**Normal**	**EP2104405**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**13/09/2021**	**0967_POT080_210913**	**Normal**	**EP2110735**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**27/04/2022**	**0967_POT080_220427**	**Normal**	**EP2204932**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**21/09/2022**	**0967_POT080_220921**	**Normal**	**EP2212231**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**17/04/2023**	**0967_POT080_230417**	**Normal**	**EP2304859**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT080	**18/09/2023**	**0967_POT080_230918**	**Normal**	**EP2312960**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT081	**16/02/2018**	**BORE 81**	**Normal**	**EP1802611**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
POT081	**17/10/2018**	**0967_POT081_181017**	**Normal**	**EP1812163**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
POT081	**5/03/2019**	**0967_POT081_190305**	**Normal**	**EP1902017**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
POT081	**14/09/2021**	**0967_POT081_210914**	**Normal**	**EP2110829**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
POT081	**27/04/2022**	**0967_POT081_220427**	**Normal**	**EP2204933**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02
POT081	**21/09/2022**	**0967_POT081_220921**	**Normal**	**EP2212233**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT081	**14/04/2023**	**0967_POT081_230414**	**Normal**	**EP2304735**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT081	**18/09/2023**	**0967_POT081_230918**	**Normal**	**EP2312961**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT086	**16/02/2018**	**BORE 86**	**Normal**	**EP1802617**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**10/10/2018**	**0967_POT086_181010**	**Normal**	**EP1811776**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**8/03/2019**	**0967_POT086_190308**	**Normal**	**EP1902150**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**1/11/2019**	**0967_POT086_191101**	**Normal**	**EP1911349**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**11/05/2020**	**0967_POT086_200511**	**Normal**	**EP2004771**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**13/10/2020**	**0967_POT086_201013**	**Normal**	**EP2011064**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**22/04/2021**	**0967_POT086_210422**	**Normal**	**EP2104410**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**13/09/2021**	**0967_POT086_210913**	**Normal**	**EP2110741**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**27/04/2022**	**0967_POT086_220427**	**Normal**	**EP2204924**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**21/09/2022**	**0967_POT086_220921**	**Normal**	**EP2212226**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**14/04/2023**	**0967_POT086_230414**	**Normal**	**EP2304747**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT086	**27/09/2023**	**0967_POT086_230927**	**Normal**	**EP2313502**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**19/02/2018**	**BORE 89**	**Normal**	**EP1802570**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**19/02/2018**	**BORE 89**	**Normal**	**EP1802857**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**17/10/2018**	**0967_POT089_181017**	**Normal**	**EP1812161**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**17/10/2018**	**0967_QC106_181017**	**Field Duplicate**	**EP1812171**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**17/10/2018**	**0967_QC206_181017**	**Interlab Duplicate**	**217514**	<0.01	<0.01	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT089	**12/03/2019**	**0967_POT089_190312**	**Normal**	**EP1902286**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**12/03/2019**	**0967_QC120_190312**	**Field Duplicate**	**EP1902288**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**12/03/2019**	**0967_QC220_190312**	**Interlab Duplicate**	**223634**	0.01	<0.01	0.03	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT089	**28/10/2019**	**0967_POT089_191028**	**Normal**	**EP1911093**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**28/04/2022**	**0967_POT089_220428**	**Normal**	**EP2204968**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**19/09/2022**	**0967_POT089_220919**	**Normal**	**EP2212059**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**19/09/2022**	**0967_QC104_220919**	**Field Duplicate**	**EP2212059**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT089	**19/09/2022**	**0967_QC204_220919**	**Interlab Duplicate**	**926012**	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT089	**14/04/2023**	**0967_POT089_230414**	**Normal**	**EP2304758**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**15/02/2018**	**BORE 92**	**Normal**	**EP1802595**	<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**18/10/2018**	**0967_POT092_181018**	**Normal**	**EP1812182**	<0.02	<0.02	0.06	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**19/03/2019**	**0967_POT092_190319**	**Normal**	**EP1902514**	<0.02	<0.02	0.04	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**7/11/2019**	**0967_POT092_191107**	**Normal**	**EP1911622**	<0.02	<0.02	0.08	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**11/05/2020**	**0967_POT092_200511**	**Normal**	**EP2004757**	<0.02	<0.02	0.06	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**13/10/2020**	**0967_POT092_201013**	**Normal**	**EP2011058**	<0.02	<0.02	0.09	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**20/04/2021**	**0967_POT092_210420**	**Normal**	**EP2104289**	<0.02	<0.02	0.10	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**13/09/2021**	**0967_POT092_210913**	**Normal**	**EP2110740**	<0.02	<0.02	0.08	<0.02	0.12	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**27/04/2022**	**0967_POT092_220427**	**Normal**	**EP2204925**	0.03	<0.02	0.10	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**21/09/2022**	**0967_POT092_220921**	**Normal**	**EP2212240**	0.02	0.02	0.12	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**19/04/2023**	**0967_POT092_230419**	**Normal**	**EP2305001**	<0.02	<0.02	0.10	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT092	**22/09/2023**	**0967_POT092_230922**	**Normal**	**EP2313219**	0.02	0.02	0.13	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**21/02/2018**	**BORE 99**	**Normal**	**EP1802762**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**19/10/2018**	**0967_POT099_181019**	**Normal**	**EP1812280**	<0.02	<0.02	0.09	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**19/10/2018**	**0967_QC111_181019**	**Field Duplicate**	**EP1812271**	<0.02	<0.02	0.08	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**19/10/2018**	**0967_QC211_181019**	**Interlab Duplicate**	**217646**	<0.01	0.01	0.08	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT099	**8/03/2019**	**0967_POT099_190308**	**Normal**	**EP1902152**	<0.02	<0.02	0.10	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**15/05/2020**	**0967_POT099**	**Normal**	**EP2005025**	<0.02	0.04	0.13	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**13/10/2020**	**0967_POT099_201013**	**Normal**	**EP2011065**	<0.04	<0.04	0.11	<0.04	<0.04	<0.04	<0.2	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
POT099	**19/04/2021**	**0967_POT099_210419**	**Normal**	**EP2104211**	<0.02	<0.02	0.11	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**13/09/2021**	**0967_POT099_210913**	**Normal**	**EP2110746**	<0.02	<0.02	0.12	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**13/09/2021**	**0967_QC104_210913**	**Field Duplicate**	**EP2110746**	<0.02	<0.02	0.13	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT099	**13/09/2021**	**0967_QC204_210913**	**Interlab Duplicate**	**824978**	0.01	0.01	0.11	<0.01	0.02	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT099	**26/04/2022**	**0967_POT099_220426**	**Normal**	**EP2204836**	<0.02	<0.02	0.10	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**22/09/2022**	**0967_POT099_220922**	**Normal**	**EP2212312**	<0.02	<0.02	0.13	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**14/04/2023**	**0967_POT099_230414**	**Normal**	**EP2304742**	<0.02	<0.02	0.11	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT099	**19/09/2023**	**0967_POT099_230919**	**Normal**	**EP2312972**	<0.02	<0.02	0.11	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**21/02/2018**	**BORE 100**	**Normal**	**EP1802764**	<0.02	<0.02	0.05	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**18/10/2018**	**0967_POT100_181018**	**Normal**	**EP1812183**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**5/03/2019**	**0967_POT100_190305**	**Normal**	**EP1902018**	<0.02	<0.02	0.10	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**5/03/2019**	**0967_QC117_190305**	**Field Duplicate**	**EP1902004**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**5/03/2019**	**0967_QC217_190305**	**Interlab Duplicate**	**223472**	<0.01	0.01	0.09	<0.01	0.03	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
POT100	**1/11/2019**	**0967_POT100_191101**	**Normal**	**EP1911351**	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**3/06/2020**	**0967_POT100_200603**	**Normal**	**EP2005737**	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**13/10/2020**	**0967_POT100_201013**	**Normal**	**EP2011069**	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**22/04/2021**	**0967_POT100_210422**	**Normal**	**EP2104416**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**13/09/2021**	**0967_POT100_210913**	**Normal**	**EP2110745**	<0.02	<0.02	0.08	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**13/09/2021**	**0967_QC103_210913**	**Field Duplicate**	**EP2110745**	<0.02	<0.02	0.11	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**13/09/2021**	**0967_QC203_210913**	**Interlab Duplicate**	**824978**	<0.01	<0.01	0.08	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT100	**27/04/2022**	**0967_POT100_220427**	**Normal**	**EP2204921**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**21/09/2022**	**0967_POT100_220921**	**Normal**	**EP2212228**	<0.02	<0.02	0.12	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**18/04/2023**	**0967_POT100_230418**	**Normal**	**EP2304920**	<0.02	<0.02	0.07	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT100	**14/09/2023**	**0967_POT100_230914**	**Normal**	**EP2312715**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**1/03/2018**	**BORE 114**	**Normal**	**EP1803144**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**22/11/2018**	**0967_POT114_181122**	**Normal**	**EP1813723**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**7/03/2019**	**0967_POT114_190307**	**Normal**	**EP1902136**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**7/11/2019**	**0967_POT114_191107**	**Normal**	**EP1911623**	<0.02	<0.02	0.09	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**3/06/2020**	**0967_POT114_200603**	**Normal**	**EP2005735**	0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**13/10/2020**	**0967_POT114_201013**	**Normal**	**EP2011071**	0.02	<0.02	0.09	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**19/04/2021**	**0967_POT114_210419**	**Normal**	**EP2104208**	0.02	<0.02	0.11	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**13/09/2021**	**0967_POT114_210913**	**Normal**	**EP2110788**	0.02	<0.02	0.10	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**22/04/2022**	**0967_POT114_220422**	**Normal**	**EP2204757**	0.03	0.02	0.10	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**22/04/2022**	**0967_QC115_220422**	**Field Duplicate**	**EP2204757**	0.02	0.02	0.09	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**22/04/2022**	**0967_QC215_220422**	**Interlab Duplicate**	**882822**	0.02	0.02	0.08	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT114	**21/09/2022**	**0967_POT114_220921**	**Normal**	**EP2212239**	0.03	0.03	0.15	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**13/04/2023**	**0967_POT114_230413**	**Normal**	**EP2304673**	0.03	0.03	0.13	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT114	**19/09/2023**	**0967_POT114_230919**	**Normal**	**EP2312970**	0.03	0.02	0.11	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT116	**1/03/2018**	**BORE 116**	**Normal**	**EP1803146**	0.07	0.06	0.48	<0.02	0.08	<0.02	<0.1	<0.02	0.12	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**10/10/2018**	**0967_POT116_181010**	**Normal**	**EP1811781**	0.11	0.11	0.68	<0.02	0.10	<0.02	<0.1	0.03	0.12	<0.02	0.03	<0.02	<0.02	<0.02
POT116	**19/03/2019**	**0967_POT116_190319**	**Normal**	**EP1902515**	0.09	0.09	0.57	<0.02	0.09	<0.02	<0.1	<0.02	0.08	<0.02	0.03	<0.02	<0.02	<0.02
POT116	**1/11/2019**	**0967_POT116_191101**	**Normal**	**EP1911359**	0.10	0.09	0.62	<0.02	0.09	<0.02	<0.1	<0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02
POT116	**15/05/2020**	**0967_POT116_200515**	**Normal**	**EP2005026**	0.10	0.15	0.66	<0.02	0.12	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**22/10/2020**	**0967_POT116_201022**	**Normal**	**EP2011541**	0.10	0.09	0.50	<0.02	0.10	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02
POT116	**19/04/2021**	**0967_POT116_210419**	**Normal**	**EP2104207**	0.10	0.10	0.69	<0.02	0.11	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**13/09/2021**	**0967_POT116_210913**	**Normal**	**EP2110742**	0.09	0.07	0.47	<0.02	0.11	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**27/04/2022**	**0967_POT116_220427**	**Normal**	**EP2204923**	0.10	0.10	0.75	<0.02	0.16	<0.02	<0.1	0.03	0.13	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**19/09/2022**	**0967_POT116_220919**	**Normal**	**EP2212060**	0.11	0.13	0.81	<0.02	0.17	<0.02	<0.1	0.03	0.08	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**19/09/2022**	**0967_QC107_220919**	**Field Duplicate**	**EP2212060**	0.10	0.10	0.76	<0.02	0.17	<0.02	<0.1	0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**19/09/2022**	**0967_QC207_220919**	**Interlab Duplicate**	**926012**	0.07	0.07	0.48	<0.01	0.13	<0.01	<0.05	0.02	0.04	<0.01	0.01	<0.01	<0.01	<0.01
POT116	**14/04/2023**	**0967_POT116_230414**	**Normal**	**EP2304753**	0.06	0.09	0.47	<0.02	0.12	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02
POT116	**14/09/2023**	**0967_POT116_230914**	**Normal**	**EP2312718**	0.09	0.09	0.55	<0.02	0.12	<0.02	<0.1	0.02	0.11	<0.02	0.02	<0.02	<0.02	<0.02
POT124	**22/05/2018**	**0967_POT124_180522**	**Normal**	**EP1806350**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**29/10/2018**	**0967_POT124_181029**	**Normal**	**EP1812672**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**6/06/2019**	**0967_POT124-INSIDE_190606**	**Normal**	**EP1905525**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**6/06/2019**	**0967_POT124-OUTSIDE_190606**	**Normal**	**EP1905526**	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**29/10/2019**	**0967_POT124_191029**	**Normal**	**EP1911156**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**11/05/2020**	**0967_POT124_200511**	**Normal**	**EP2004759**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**14/10/2020**	**0967_POT124_201014**	**Normal**	**EP2011166**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**21/04/2021**	**0967_POT124_210421**	**Normal**	**EP2104354**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**16/09/2021**	**0967_POT124_210916**	**Normal**	**EP2110927**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**28/04/2022**	**0967_POT124_220428**	**Normal**	**EP2204969**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**22/09/2022**	**0967_POT124_220922**	**Normal**	**EP2212300**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**14/04/2023**	**0967_POT124_230414**	**Normal**	**EP2304732**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT124	**19/09/2023**	**0967_POT124_230919**	**Normal**	**EP2312971**	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**22/05/2018**	**0967_POT125_180522**	**Normal**	**EP1806351**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**15/10/2018**	**0967_POT125_181015**	**Normal**	**EP1811989**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**1/11/2019**	**0967_POT125_191101**	**Normal**	**EP1911346**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**15/05/2020**	**0967_POT125**	**Normal**	**EP2005028**	0.02	0.03	0.09	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**6/11/2020**	**0967_POT125_201106**	**Normal**	**EP2012227**	<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**27/04/2021**	**0967_POT125_210427**	**Normal**	**EP2104541**	0.03	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**27/04/2022**	**0967_POT125_220427**	**Normal**	**EP2204934**	0.08	0.06	0.25	<0.02	0.04	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**19/09/2022**	**0967_POT125_220919**	**Normal**	**EP2212062**	0.02	<0.02	0.10	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT125	**19/04/2023**	**0967_POT125_230419**	**Normal**	**EP2305004**	<0.02	<0.02	0.06	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**22/05/2018**	**0967_POT127_180522**	**Normal**	**EP1806353**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**11/10/2018**	**0967_POT127_181011**	**Normal**	**EP1811861**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

					PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
					Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting					0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water															*0.56*			
PFAS NEMP 2020 Recreational Water															**10**			
Location Code	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**														
POT127	**7/03/2019**	**0967_POT127_190307**	**Normal**	**EP1902137**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**28/10/2019**	**0967_POT127_191028**	**Normal**	**EP1911093**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**15/05/2020**	**0967_POT127**	**Normal**	**EP2005019**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**13/10/2020**	**0967_POT127_201013**	**Normal**	**EP2011077**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**19/04/2021**	**0967_POT127_210419**	**Normal**	**EP2104213**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**14/09/2021**	**0967_POT127_210914**	**Normal**	**EP2110828**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**22/04/2022**	**0967_POT127_220422**	**Normal**	**EP2204761**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**22/04/2022**	**0967_QC117_220422**	**Field Duplicate**	**EP2204761**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**21/09/2022**	**0967_POT127_220921**	**Normal**	**EP2212225**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**13/04/2023**	**0967_POT127_230413**	**Normal**	**EP2304671**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT127	**18/09/2023**	**0967_POT127_230918**	**Normal**	**EP2312959**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**22/05/2018**	**0967_POT128_180522**	**Normal**	**EP1806354**	<0.02	<0.02	0.11	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**19/09/2018**	**0967_POT128_180919**	**Normal**	**EP1810865**	<0.02	<0.02	0.09	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**12/03/2019**	**0967_POT128_190312**	**Normal**	**EP1902287**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**6/06/2019**	**0967_POT128-POST_190606**	**Normal**	**EP1905528**	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**6/06/2019**	**0967_POT128-PRE_190606**	**Normal**	**EP1905527**	0.02	<0.02	0.13	<0.02	0.04	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**29/10/2019**	**0967_POT128_191029**	**Normal**	**EP1911157**	0.02	0.02	0.13	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**15/05/2020**	**0967_POT128**	**Normal**	**EP2005023**	<0.02	0.03	0.12	<0.02	0.03	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**14/10/2020**	**0967_POT128_201014**	**Normal**	**EP2011157**	<0.02	<0.02	0.13	<0.02	0.03	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**21/04/2021**	**0967_POT128_210421**	**Normal**	**EP2104357**	0.02	<0.02	0.12	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**17/09/2021**	**0967_POT128_210917**	**Normal**	**EP2111021**	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**27/04/2022**	**0967_POT128_220427**	**Normal**	**EP2204919**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**23/09/2022**	**0967_POT128_220923**	**Normal**	**EP2212381**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**14/04/2023**	**0967_POT128_230414**	**Normal**	**EP2304734**	<0.02	<0.02	0.09	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT128	**22/09/2023**	**0967_POT128_230922**	**Normal**	**EP2313216**	<0.02	<0.02	0.09	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**14/06/2018**	**0967_POT136_180614**	**Normal**	**EP1807253**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**18/11/2019**	**0967_POT136_191118**	**Normal**	**EP1912045**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**11/05/2020**	**0967_POT136_200511**	**Normal**	**EP2004766**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**22/10/2020**	**0967_POT136_201022**	**Normal**	**EP2011542**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**20/04/2021**	**0967_POT136_210420**	**Normal**	**EP2104295**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**20/04/2021**	**0967_QC112_210420**	**Field Duplicate**	**EP2104295**	<0.02	<0.02	0.06	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**20/04/2021**	**0967_QC212_210420**	**Interlab Duplicate**	**789529**	0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT136	**16/09/2021**	**0967_POT136_210916**	**Normal**	**EP2110924**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**26/04/2022**	**0967_POT136_220426**	**Normal**	**EP2204840**	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**22/09/2022**	**0967_POT136_220922**	**Normal**	**EP2212304**	<0.02	<0.02	0.08	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**14/04/2023**	**0967_POT136_230414**	**Normal**	**EP2304741**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT136	**18/09/2023**	**0967_POT136_230918**	**Normal**	**EP2312956**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	**14/06/2018**	**0967_POT137_180614**	**Normal**	**EP1807254**	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	**28/11/2018**	**0967_POT137_181128**	**Normal**	**EP1813989**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	**18/11/2019**	**0967_POT137_191118**	**Normal**	**EP1912049**	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	**22/10/2020**	**0967_POT137_201022**	**Normal**	**EP2011540**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	**22/04/2021**	**0967_POT137_210422**	**Normal**	**EP2104406**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02

Table 2 Private Bores analytical results

	PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids							
	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting	0.002	0.01	0.002	0.01	0.002	0.01	0.01	0.002	0.002	0.002	0.002	0.01	0.01	0.01
PFAS NEMP 2020 Drinking Water											*0.56*			
PFAS NEMP 2020 Recreational Water											**10**			

Location Code	Date	Field ID	Sample Type	Lab Report Number														
POT137	14/09/2021	0967_POT137_210914	Normal	EP2110832	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	27/04/2022	0967_POT137_220427	Normal	EP2204927	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	21/09/2022	0967_POT137_220921	Normal	EP2212234	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	14/04/2023	0967_POT137_230414	Normal	EP2304751	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT137	22/09/2023	0967_POT137_230922	Normal	EP2313220	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	19/10/2018	0967_POT147_181019	Normal	EP1812281	<0.02	<0.02	0.08	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	9/05/2019	0967_POT147_190509	Normal	EP1904452	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	28/10/2019	0967_POT147_191028	Normal	EP1911093	<0.02	<0.02	0.14	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	15/05/2020	0967_POT147	Normal	EP2005017	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	12/10/2020	0967_POT147_201012	Normal	EP2011000	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	21/04/2021	0967_POT147_210421	Normal	EP2104400	<0.02	<0.02	0.08	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	14/09/2021	0967_POT147_210914	Normal	EP2110826	<0.02	<0.02	0.07	<0.02	<0.01	<0.02	<0.1	0.04	0.05	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	21/04/2022	0967_POT147_220421	Normal	EP2204667	<0.02	<0.02	0.08	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	21/09/2022	0967_POT147_220921	Normal	EP2212230	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	12/04/2023	0967_POT147_230412	Normal	EP2304610	<0.02	<0.02	0.08	<0.02	0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	12/04/2023	0967_QC114_230412	Field Duplicate	EP2304610	<0.02	<0.02	0.08	<0.02	0.01	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	12/04/2023	0967_QC214_230412	Interlab Duplicate	982488	0.01	<0.01	0.07	<0.01	0.02	<0.01	<0.05	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
POT147	14/09/2023	0967_POT147_230914	Normal	EP2312717	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT147	14/09/2023	0967_QC112_230914	Field Duplicate	EP2312717	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	28/11/2018	0967_POT155_181128	Normal	EP1813987	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	23/03/2022	0967_POT155_220323	Normal	EP2203390	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	27/04/2022	0967_POT155_220427	Normal	EP2204930	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	27/04/2022	0967_QC118_220427	Field Duplicate	EP2204930	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	27/04/2022	0967_QC218_220427	Interlab Duplicate	884660	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POT155	19/09/2022	0967_POT155_220919	Normal	EP2212081	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	14/04/2023	0967_POT155_230414	Normal	EP2304740	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT155	18/09/2023	0967_POT155_230918	Normal	EP2312957	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT159	8/02/2019	0967_POT159_190208	Normal	EP1901227	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	0.02	0.06	<0.02	<0.02	<0.02
POT159	1/11/2019	0967_POT159_191101	Normal	EP1911347	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02
POT159	15/05/2020	0967_POT159_200515	Normal	EP2005029	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	<0.02
POT159	29/10/2020	0967_POT159_201029	Normal	EP2011884	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02
POT159	19/04/2021	0967_POT159_210419	Normal	EP2104209	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02
POT159	16/09/2021	0967_POT159_210916	Normal	EP2110926	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02
POT159	2/05/2022	0967_POT159_220502	Normal	EP2205162	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02
POT159	22/09/2022	0967_POT159_220922	Normal	EP2212305	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.09	<0.02	<0.02	<0.02
POT159	14/04/2023	0967_POT159_230414	Normal	EP2304748	0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02
POT159	15/09/2023	0967_POT159_230915	Normal	EP2312803	<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
POT165	9/05/2019	0967_POT165_190509	Normal	EP1904454	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	18/11/2019	0967_POT165_191118	Normal	EP1912044	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	15/05/2020	0967_POT165_200515	Normal	EP2005027	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	6/11/2020	0967_POT165_201106	Normal	EP2012228	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	22/04/2021	0967_POT165_210422	Normal	EP2104407	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	14/09/2021	0967_POT165_210914	Normal	EP2110830	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	26/04/2022	0967_POT165_220426	Normal	EP2204839	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT165	19/09/2022	0967_POT165_220919	Normal	EP2212082	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02
POT165	18/09/2023	0967_POT165_230918	Normal	EP2312963	<0.02	<0.02	0.03	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	10/02/2020	0967_POT181_200210	Normal	EP2001473	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	15/05/2020	0967_POT181_200515	Normal	EP2005018	<0.02	<0.02	0.04	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	13/10/2020	0967_POT181_201013	Normal	EP2011086	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	20/04/2021	0967_POT181_210420	Normal	EP2104294	0.03	0.03	0.17	<0.02	0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	20/04/2021	0967_QC111_210420	Field Duplicate	EP2104294	0.03	0.04	0.18	<0.02	0.02	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	20/04/2021	0967_QC211_210420	Interlab Duplicate	789529	0.02	0.03	0.13	<0.01	0.03	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
POT181	14/09/2021	0967_POT181_210914	Normal	EP2110824	<0.02	<0.02	0.05	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	22/04/2022	0967_POT181_220422	Normal	EP2204759	0.03	0.04	0.22	<0.02	0.04	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	22/04/2022	0967_QC116_220422	Field Duplicate	EP2204759	0.04	0.04	0.23	<0.02	0.04	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	22/04/2022	0967_QC216_220422	Interlab Duplicate	882822	0.03	0.03	0.15	<0.01	0.04	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
POT181	21/09/2022	0967_POT181_220921	Normal	EP2212232	<0.02	<0.02	0.10	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	12/04/2023	0967_POT181_230412	Normal	EP2304608	0.03	0.05	0.16	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	12/04/2023	0967_QC113_230412	Field Duplicate	EP2304608	0.03	0.05	0.17	<0.02	0.04	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	12/04/2023	0967_QC213_230412	Interlab Duplicate	982488	0.03	0.03	0.17	<0.01	0.04	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
POT181	15/09/2023	0967_POT181_230915	Normal	EP2312801	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	15/09/2023	0967_QC117_230915	Field Duplicate	EP2312801	<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
POT181	15/09/2023	0967_QC217_230915	Interlab Duplicate	1026632	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

							PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT003	**13/05/2016**	**Bore 3**	**Normal**	<0.05	<0.05	<0.5		<0.1	<0.1		<0.02	<0.5		<0.5	<0.05		<0.5	*0.19*		
POT003	**17/01/2017**	**BORE 3**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.4*	0.47	0.51
POT003	**17/01/2017**	**Bore_FD01**	**Field Duplicate**				<0.005	<0.005	<0.005	<0.005								*0.44*	0.554	
POT003	**17/01/2017**	**BORE-FS01**	**Interlab Duplicate**					<0.01	<0.01									*0.19*		
POT003	**4/09/2017**	**BORE 3**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.17	0.17
POT003	**11/10/2018**	**0967_POT003_181011**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.37	0.41
POT003	**5/03/2019**	**0967_POT003_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.35	0.38
POT003	**7/11/2019**	**0967_POT003_191107**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.28	0.28
POT003	**15/05/2020**	**0967_POT003**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.13	0.15
POT003	**14/10/2020**	**0967_POT003_201014**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT003	**21/04/2021**	**0967_POT003_210421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT003	**14/09/2021**	**0967_POT003_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT003	**27/04/2022**	**0967_POT003_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT003	**22/09/2022**	**0967_POT003_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT003	**19/04/2023**	**0967_POT003_230419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT003	**15/09/2023**	**0967_POT003_230915**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT009	**16/05/2016**	**Bore 9**	**Normal**	<0.05	<0.05	<0.5		<0.1	<0.1		<0.02	<0.5		<0.5	<0.05		<0.5	*0.11*		
POT009	**17/01/2017**	**BORE 9**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.1*	0.1	0.1
POT009	**6/09/2017**	**BORE 9**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT009	**6/09/2017**	**WFD_OS_06**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT009	**6/09/2017**	**WFS_OS_06**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0		
POT009	**22/10/2018**	**0967_POT009_181022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT009	**8/03/2019**	**0967_POT009_190308**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT009	**1/11/2019**	**0967_POT009_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT009	**11/05/2020**	**0967_POT009_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT009	**12/10/2020**	**0967_POT009_201012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT009	**22/04/2021**	**0967_POT009_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT009	**13/09/2021**	**0967_POT009_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT009	**22/04/2022**	**0967_POT009_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT009	**19/09/2022**	**0967_POT009_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
POT009	**12/04/2023**	**0967_POT009_230412**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT009	**12/04/2023**	**0967_QC111_230412**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT009	**12/04/2023**	**0967_QC211_230412**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.1
POT009	**22/09/2023**	**0967_POT009_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT014	**2/08/2016**	**BORE 14**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0		<0.01
POT014	**4/09/2017**	**BORE 14**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**19/03/2019**	**0967_POT014_190319**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**28/10/2019**	**0967_POT014_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**11/05/2020**	**0967_POT014_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**13/10/2020**	**0967_POT014_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**27/04/2021**	**0967_POT014_210427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**14/09/2021**	**0967_POT014_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**2/05/2022**	**0967_POT014_220502**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**22/09/2022**	**0967_POT014_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**18/04/2023**	**0967_POT014_230418**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT014	**18/09/2023**	**0967_POT014_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**2/08/2016**	**BORE 15**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0		<0.01
POT015	**4/09/2017**	**BORE 15**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**30/10/2018**	**0967_POT015_181030**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**19/03/2019**	**0967_POT015_190319**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**28/10/2019**	**0697_POT015_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**15/05/2020**	**0967_POT015_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**27/04/2021**	**0967_POT015_210427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**14/09/2021**	**0967_POT015_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**2/05/2022**	**0967_POT015_220502**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**23/09/2022**	**0967_POT015_220923**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**14/04/2023**	**0967_POT015_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**14/09/2023**	**0967_POT015_230914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**14/09/2023**	**0967_QC115_230914**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT015	**14/09/2023**	**0967_QC215_230914**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT018	**4/08/2016**	**BORE 18**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01		<0.01
POT018	**4/09/2017**	**BORE 18**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**11/04/2019**	**0967_POT018_190411**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**1/11/2019**	**0967_POT018_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**11/05/2020**	**0967_POT018_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**12/10/2020**	**0967_POT18_201012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**19/04/2021**	**0967_POT018_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**19/04/2021**	**0967_QC103_210419**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**13/09/2021**	**0967_POT018_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**27/04/2022**	**0967_POT018_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**20/09/2022**	**0967_POT018_220920**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT018	**12/04/2023**	**0967_POT018_230412**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**12/04/2023**	**0967_QC112_230412**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT018	**12/04/2023**	**0967_QC212_230412**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT019	**4/08/2016**	**BORE 19**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05		0.05
POT019	**18/01/2017**	**BORE 19**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**4/09/2017**	**BORE 19**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**4/09/2017**	**WFD_OS_04**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**4/09/2017**	**WFS_OS_04**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0		
POT019	**15/10/2018**	**0967_POT019_181015**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**5/03/2019**	**0967_POT019_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**1/11/2019**	**0967_POT019_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**11/05/2020**	**0967_POT019_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**12/10/2020**	**0967_POT019_201012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**19/04/2021**	**0967_POT019_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**13/09/2021**	**0967_POT019_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT019	**26/04/2022**	**0967_POT019_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**20/09/2022**	**0967_POT019_220920**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**14/04/2023**	**0967_POT019_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT019	**18/09/2023**	**0967_POT019_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**4/08/2016**	**BORE 20**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01		<0.01
POT020	**6/09/2017**	**BORE 20**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**30/10/2018**	**0967_POT020_181030**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**13/05/2020**	**0967_POT020_200513**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**13/10/2020**	**0967_POT020_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**22/04/2021**	**0967_POT020_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**17/09/2021**	**0967_POT020_210917**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**16/09/2022**	**0967_POT020_220916**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**19/04/2023**	**0967_POT020_230419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT020	**18/09/2023**	**0967_POT020_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**4/08/2016**	**BORE 21**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01		<0.01
POT021	**4/08/2016**	**FD04**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05			<0.01
POT021	**4/08/2016**	**FS04**	**Interlab Duplicate**	<0.05	<0.01	<0.5	<0.01	<0.01	<0.01		<0.1	<0.05		<0.1	<0.05		<0.5	0		
POT021	**7/09/2017**	**BORE 21**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**11/10/2018**	**0967_POT021_181011**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**11/10/2018**	**0967_QC101_181011**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**11/10/2018**	**0967_QC201_181011**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01		<0.01
POT021	**1/11/2019**	**0967_POT021_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**29/10/2020**	**0967_POT021_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**27/04/2021**	**0967_POT021_210427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**14/09/2021**	**0967_POT021_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**27/04/2022**	**0967_POT021_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**21/09/2022**	**0967_POT021_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**14/04/2023**	**0967_POT021_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT021	**18/09/2023**	**0967_POT021_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**17/01/2017**	**BORE 27**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT027	**5/09/2017**	**BORE 27**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**15/10/2018**	**0967_POT027_181015**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**5/03/2019**	**0967_POT027_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT027	**1/11/2019**	**0967_POT027_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT027	**11/05/2020**	**0967_POT027_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT027	**12/10/2020**	**0967_POT027_201012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**20/04/2021**	**0967_POT027_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT027	**14/09/2021**	**0967_POT027_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**27/04/2022**	**0967_POT027_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT027	**26/09/2022**	**0967_POT027_220926**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT027	**14/04/2023**	**0967_POT027_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT027	**18/09/2023**	**0967_POT027_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
POT029	**17/01/2017**	**BORE 29**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**6/09/2017**	**BORE 29**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**12/10/2018**	**0967_POT029_181012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**7/03/2019**	**0967_POT029_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**28/10/2019**	**0967_POT029_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**15/05/2020**	**0967_POT029_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**13/10/2020**	**0967_POT029_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**22/04/2021**	**0967_POT029_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**14/09/2021**	**0967_POT029_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**22/04/2022**	**0967_POT029_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**22/04/2022**	**0967_QC114_220422**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**22/04/2022**	**0967_QC214_220422**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT029	**19/09/2022**	**0967_POT029_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**17/04/2023**	**0967_POT029_230417**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT029	**22/09/2023**	**0967_POT029_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**17/01/2017**	**BORE 30**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT030	**8/09/2017**	**BORE 30**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**11/10/2018**	**0967_POT030_181011**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**6/06/2019**	**0967_POT030_190606**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT030	**11/05/2020**	**0967_POT030_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**6/11/2020**	**0967_POT030_201106**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**20/04/2021**	**0967_POT030_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**20/04/2021**	**0967_QC107_210420**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**20/04/2021**	**0967_QC207_210420**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT030	**21/09/2021**	**0967_POT030_210921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**27/04/2022**	**0967_POT030_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT030	**21/09/2022**	**0967_POT030_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT030	**14/04/2023**	**0967_POT030_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT030	**22/09/2023**	**0967_POT030_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT031	**17/01/2017**	**BORE 31**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.27	0.27
POT031	**5/09/2017**	**Bore 31_purged**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT031	**5/09/2017**	**BORE 31**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT031	**5/09/2017**	**BORE 31**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT031	**5/09/2017**	**WFD_OS_05**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT031	**5/09/2017**	**WFS_OS_05**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.13*		
POT031	**11/10/2018**	**0967_POT031_181011**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17
POT031	**5/03/2019**	**0967_POT031_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19
POT031	**28/10/2019**	**0967_POT031_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14
POT031	**11/05/2020**	**0967_POT031_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15
POT031	**13/10/2020**	**0967_POT031_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT031	**20/04/2021**	**0967_POT031_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT031	**13/09/2021**	**0967_POT031_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT031	**22/04/2022**	**0967_POT031_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT031	**19/09/2022**	**0967_POT031_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT031	**19/09/2022**	**0967_QC108_220919**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT031	**19/09/2022**	**0967_QC208_220919**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.06	<0.1
POT031	**14/04/2023**	**0967_POT031_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT031	**19/09/2023**	**0967_POT031_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
POT032	**17/01/2017**	**BORE 32**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**4/09/2017**	**BORE 32**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**10/10/2018**	**0967_POT032_181010**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**5/03/2019**	**0967_POT032_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**28/10/2019**	**0967_POT032_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**15/05/2020**	**0967_POT032_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**13/10/2020**	**0967_POT032_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**22/04/2021**	**0967_POT032_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**13/09/2021**	**0967_POT032_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**13/09/2021**	**0967_QC101_210913**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**13/09/2021**	**0967_QC201_210913**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT032	**27/04/2022**	**0967_POT032_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**19/09/2022**	**0967_POT032_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**13/04/2023**	**0967_POT032_230413**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**14/09/2023**	**0967_POT032_230914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**14/09/2023**	**0967_QC113_230914**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT032	**14/09/2023**	**0967_QC213_230914**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT040	**31/01/2017**	**Bore 40**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*		0.26
POT040	**22/10/2018**	**0967_POT040_181022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT040	**5/03/2019**	**0967_POT040_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.20	0.20
POT040	**28/10/2019**	**0967_POT040_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT040	**15/05/2020**	**0967_POT040**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT040	**14/10/2020**	**0967_POT040_201014**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.29	0.29
POT040	**20/04/2021**	**0967_POT040_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.23	0.23
POT040	**14/09/2021**	**0967_POT040_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
POT040	**22/04/2022**	**0967_POT040_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT040	**19/09/2022**	**0967_POT040_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT040	**14/04/2023**	**0967_POT040_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.14	0.14
POT040	**22/09/2023**	**0967_POT040_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT042	**31/01/2017**	**Bore 42**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06		0.06
POT042	**5/09/2017**	**BORE 42**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT042	**18/10/2018**	**0967_POT042_181018**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT042	**8/03/2019**	**0967_POT042_190308**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT042	**8/03/2019**	**0967_QC119_190308**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT042	**8/03/2019**	**0967_QC219_190308**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.03		0.03
POT042	**1/11/2019**	**0967_POT042_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT042	**15/05/2020**	**0967_POT042**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT042	**13/10/2020**	**0967_POT042_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT042	**22/04/2021**	**0967_POT042_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT042	**16/09/2021**	**0967_POT042_210916**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT042	**26/04/2022**	**0967_POT042_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids														PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT042	**22/09/2022**	**0967_POT042_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT042	**14/04/2023**	**0967_POT042_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.05	0.05
POT042	**22/09/2023**	**0967_POT042_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT044	**31/01/2017**	**Bore 44**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0		<0.01
POT044	**5/09/2017**	**BORE 44**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**6/11/2018**	**0967_POT044_181106**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**7/03/2019**	**0967_POT044_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**15/05/2020**	**0967_POT044**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**13/10/2020**	**0967_POT044_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**22/04/2021**	**0967_POT044_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**13/09/2021**	**0967_POT044_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**27/04/2022**	**0967_POT044_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**19/09/2022**	**0967_POT044_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**19/09/2022**	**0967_QC102_220919**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**19/09/2022**	**0967_QC202_220919**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1
POT044	**17/04/2023**	**0967_POT044_230417**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT044	**22/09/2023**	**0967_POT044_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT052	**8/02/2018**	**BORE 52**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT052	**19/10/2018**	**0967_POT052_181019**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT052	**19/10/2018**	**0967_QC110_181019**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT052	**19/10/2018**	**0967_QC210_181019**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.01		0.01
POT052	**7/03/2019**	**0967_POT052_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.06	0.06
POT052	**1/11/2019**	**0967_POT052_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT052	**15/05/2020**	**0967_POT052_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT052	**14/10/2020**	**0967_POT052_201014**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT052	**21/04/2021**	**0967_POT052_210421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT052	**13/09/2021**	**0967_POT052_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.07	0.07
POT052	**26/04/2022**	**0967_POT052_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT052	**22/09/2022**	**0967_POT052_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.36*	0.38	0.38
POT052	**14/04/2023**	**0967_POT052_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17
POT052	**19/09/2023**	**0967_POT052_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17
POT070D	**15/05/2020**	**0967_POT070_28m**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**29/10/2020**	**0967_POT070_D_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**20/04/2021**	**0967_POT070D_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**21/09/2021**	**0967_POT070_210921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**22/04/2022**	**0967_POT070D_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**21/09/2022**	**0967_POT070D_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**17/04/2023**	**0967_POT070D_230417**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070D	**18/09/2023**	**0967_POT070D_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070S	**20/01/2018**	**FD01_SN_20180219**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT070S	**15/02/2018**	**BORE 70**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT070S	**22/10/2018**	**0967_POT070_181022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT070S	**12/03/2019**	**0967_POT070_190312**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT070S	**1/11/2019**	**0967_POT070_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT070S	**15/05/2020**	**0967_POT070_16m_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT070S	**29/10/2020**	**0967_POT070_S_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT070S	**20/04/2021**	**0967_POT070S_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT070S	**22/04/2022**	**0967_POT070S_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT070S	**22/09/2022**	**0967_POT070S_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT070S	**17/04/2023**	**0967_POT070S_230417**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT070S	**18/09/2023**	**0967_POT070S_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT073	**15/02/2018**	**BORE 73**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**17/10/2018**	**0967_POT073_181017**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT073	**17/10/2018**	**0967_QC109_181017**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**17/10/2018**	**0967_QC209_181017**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.02		0.02
POT073	**5/03/2019**	**0967_POT073_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT073	**19/11/2019**	**0967_POT073_191119**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT073	**11/05/2020**	**0967_POT073_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT073	**29/10/2020**	**0967_POT073_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**19/04/2021**	**0967_POT073_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT073	**13/09/2021**	**0967_POT073_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT073	**13/09/2021**	**0967_QC102_210913**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**13/09/2021**	**0967_QC202_210913**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1
POT073	**26/04/2022**	**0967_POT073_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**6/10/2022**	**0967_POT073_221006**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT073	**14/04/2023**	**0967_POT073_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.08	0.08
POT073	**19/09/2023**	**0967_POT073_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT076	**15/02/2018**	**BORE 76**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**6/11/2018**	**0967_POT076_181106**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**1/11/2019**	**0967_POT076_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**11/05/2020**	**0967_POT076_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**13/10/2020**	**0967_POT076_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**27/04/2021**	**0967_POT076_210427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT076	**13/09/2021**	**0967_POT076_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**26/04/2022**	**0967_POT076_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**22/09/2022**	**0967_POT076_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**14/04/2023**	**0967_POT076_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT076	**22/09/2023**	**0967_POT076_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**16/02/2018**	**BORE 80**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**29/10/2018**	**0967_POT080_181029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**7/03/2019**	**0967_POT080_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**18/11/2019**	**0967_POT080_191118**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**27/05/2020**	**0967_POT080_200527**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**29/10/2020**	**0967_POT080_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**22/04/2021**	**0967_POT080_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**13/09/2021**	**0967_POT080_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**27/04/2022**	**0967_POT080_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**21/09/2022**	**0967_POT080_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**17/04/2023**	**0967_POT080_230417**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT080	**18/09/2023**	**0967_POT080_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT081	**16/02/2018**	**BORE 81**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.03	0.03
POT081	**17/10/2018**	**0967_POT081_181017**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.03	0.03
POT081	**5/03/2019**	**0967_POT081_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02
POT081	**14/09/2021**	**0967_POT081_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02
POT081	**27/04/2022**	**0967_POT081_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02
POT081	**21/09/2022**	**0967_POT081_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT081	**14/04/2023**	**0967_POT081_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.01	0.01
POT081	**18/09/2023**	**0967_POT081_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.01	0.01
POT086	**16/02/2018**	**BORE 86**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**10/10/2018**	**0967_POT086_181010**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**8/03/2019**	**0967_POT086_190308**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**1/11/2019**	**0967_POT086_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**11/05/2020**	**0967_POT086_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**13/10/2020**	**0967_POT086_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**22/04/2021**	**0967_POT086_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**13/09/2021**	**0967_POT086_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**27/04/2022**	**0967_POT086_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**21/09/2022**	**0967_POT086_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**14/04/2023**	**0967_POT086_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT086	**27/09/2023**	**0967_POT086_230927**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT089	**19/02/2018**	**BORE 89**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT089	**19/02/2018**	**BORE 89**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT089	**17/10/2018**	**0967_POT089_181017**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT089	**17/10/2018**	**0967_QC106_181017**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT089	**17/10/2018**	**0967_QC206_181017**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.03		0.03
POT089	**12/03/2019**	**0967_POT089_190312**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT089	**12/03/2019**	**0967_QC120_190312**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT089	**12/03/2019**	**0967_QC220_190312**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	0.03		0.04
POT089	**28/10/2019**	**0967_POT089_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT089	**28/04/2022**	**0967_POT089_220428**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT089	**19/09/2022**	**0967_POT089_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT089	**19/09/2022**	**0967_QC104_220919**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT089	**19/09/2022**	**0967_QC204_220919**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.1
POT089	**14/04/2023**	**0967_POT089_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT092	**15/02/2018**	**BORE 92**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT092	**18/10/2018**	**0967_POT092_181018**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT092	**19/03/2019**	**0967_POT092_190319**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT092	**7/11/2019**	**0967_POT092_191107**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT092	**11/05/2020**	**0967_POT092_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT092	**13/10/2020**	**0967_POT092_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.18	0.18
POT092	**20/04/2021**	**0967_POT092_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16
POT092	**13/09/2021**	**0967_POT092_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.20	0.20
POT092	**27/04/2022**	**0967_POT092_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.19	0.19
POT092	**21/09/2022**	**0967_POT092_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.22	0.24
POT092	**19/04/2023**	**0967_POT092_230419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15
POT092	**22/09/2023**	**0967_POT092_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.24	0.26
POT099	**21/02/2018**	**BORE 99**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT099	**19/10/2018**	**0967_POT099_181019**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT099	**19/10/2018**	**0967_QC111_181019**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT099	**19/10/2018**	**0967_QC211_181019**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.08*		0.09
POT099	**8/03/2019**	**0967_POT099_190308**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT099	**15/05/2020**	**0967_POT099**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.19
POT099	**13/10/2020**	**0967_POT099_201013**	**Normal**	<0.04	<0.04	<0.09	<0.05	<0.05	<0.05	<0.05	<0.04	<0.09	<0.04	<0.09	<0.09	<0.04	<0.09	*0.11*	0.11	0.11
POT099	**19/04/2021**	**0967_POT099_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT099	**13/09/2021**	**0967_POT099_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT099	**13/09/2021**	**0967_QC104_210913**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT099	**13/09/2021**	**0967_QC204_210913**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.13*	0.15	0.16
POT099	**26/04/2022**	**0967_POT099_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT099	**22/09/2022**	**0967_POT099_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16
POT099	**14/04/2023**	**0967_POT099_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT099	**19/09/2023**	**0967_POT099_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14
POT100	**21/02/2018**	**BORE 100**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT100	**18/10/2018**	**0967_POT100_181018**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT100	**5/03/2019**	**0967_POT100_190305**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT100	**5/03/2019**	**0967_QC117_190305**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT100	**5/03/2019**	**0967_QC217_190305**	**Interlab Duplicate**	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1	<0.02	<0.5	*0.12*		0.13
POT100	**1/11/2019**	**0967_POT100_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT100	**3/06/2020**	**0967_POT100_200603**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT100	**13/10/2020**	**0967_POT100_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT100	**22/04/2021**	**0967_POT100_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT100	**13/09/2021**	**0967_POT100_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT100	**13/09/2021**	**0967_QC103_210913**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT100	**13/09/2021**	**0967_QC203_210913**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.1*	0.1	0.1
POT100	**27/04/2022**	**0967_POT100_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT100	**21/09/2022**	**0967_POT100_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14
POT100	**18/04/2023**	**0967_POT100_230418**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT100	**14/09/2023**	**0967_POT100_230914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT114	**1/03/2018**	**BORE 114**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT114	**22/11/2018**	**0967_POT114_181122**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT114	**7/03/2019**	**0967_POT114_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT114	**7/11/2019**	**0967_POT114_191107**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT114	**3/06/2020**	**0967_POT114_200603**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.08	0.08
POT114	**13/10/2020**	**0967_POT114_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.12
POT114	**19/04/2021**	**0967_POT114_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.13	0.13
POT114	**13/09/2021**	**0967_POT114_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.12
POT114	**22/04/2022**	**0967_POT114_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.13	0.15
POT114	**22/04/2022**	**0967_QC115_220422**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.11	0.13
POT114	**22/04/2022**	**0967_QC215_220422**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.08*	0.1	0.12
POT114	**21/09/2022**	**0967_POT114_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.18	0.21
POT114	**13/04/2023**	**0967_POT114_230413**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.16	0.19
POT114	**19/09/2023**	**0967_POT114_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.14	0.16
POT116	**1/03/2018**	**BORE 116**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.56*	0.77	0.83
POT116	**10/10/2018**	**0967_POT116_181010**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.78*	1.07	1.18
POT116	**19/03/2019**	**0967_POT116_190319**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.86	0.95
POT116	**1/11/2019**	**0967_POT116_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	0.96	1.05
POT116	**15/05/2020**	**0967_POT116_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.78*	0.97	1.12
POT116	**22/10/2020**	**0967_POT116_201022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.60*	0.76	0.85
POT116	**19/04/2021**	**0967_POT116_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	0.98	1.08
POT116	**13/09/2021**	**0967_POT116_210913**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.58*	0.78	0.85
POT116	**27/04/2022**	**0967_POT116_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.91*	1.19	1.29
POT116	**19/09/2022**	**0967_POT116_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.98*	1.22	1.35
POT116	**19/09/2022**	**0967_QC107_220919**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.93*	1.14	1.24
POT116	**19/09/2022**	**0967_QC207_220919**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.61*	0.75	0.85
POT116	**14/04/2023**	**0967_POT116_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.59*	0.75	0.84
POT116	**14/09/2023**	**0967_POT116_230914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.67*	0.91	1.00
POT124	**22/05/2018**	**0967_POT124_180522**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT124	**29/10/2018**	**0967_POT124_181029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT124	**6/06/2019**	**0967_POT124-INSIDE_190606**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT124	**6/06/2019**	**0967_POT124-OUTSIDE_190606**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT124	**29/10/2019**	**0967_POT124_191029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT124	**11/05/2020**	**0967_POT124_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT124	**14/10/2020**	**0967_POT124_201014**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT124	**21/04/2021**	**0967_POT124_210421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT124	**16/09/2021**	**0967_POT124_210916**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT124	**28/04/2022**	**0967_POT124_220428**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT124	**22/09/2022**	**0967_POT124_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT124	**14/04/2023**	**0967_POT124_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT124	**19/09/2023**	**0967_POT124_230919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01
POT125	**22/05/2018**	**0967_POT125_180522**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT125	**15/10/2018**	**0967_POT125_181015**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT125	**1/11/2019**	**0967_POT125_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT125	**15/05/2020**	**0967_POT125**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.15
POT125	**6/11/2020**	**0967_POT125_201106**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT125	**27/04/2021**	**0967_POT125_210427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.09	0.09
POT125	**27/04/2022**	**0967_POT125_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.29*	0.39	0.45
POT125	**19/09/2022**	**0967_POT125_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.14	0.14
POT125	**19/04/2023**	**0967_POT125_230419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT127	**22/05/2018**	**0967_POT127_180522**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**11/10/2018**	**0967_POT127_181011**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids							PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT127	**7/03/2019**	**0967_POT127_190307**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**28/10/2019**	**0967_POT127_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**15/05/2020**	**0967_POT127**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**13/10/2020**	**0967_POT127_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**19/04/2021**	**0967_POT127_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**14/09/2021**	**0967_POT127_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**22/04/2022**	**0967_POT127_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**22/04/2022**	**0967_QC117_220422**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**21/09/2022**	**0967_POT127_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**13/04/2023**	**0967_POT127_230413**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT127	**18/09/2023**	**0967_POT127_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT128	**22/05/2018**	**0967_POT128_180522**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13
POT128	**19/09/2018**	**0967_POT128_180919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT128	**12/03/2019**	**0967_POT128_190312**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT128	**6/06/2019**	**0967_POT128-POST_190606**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT128	**6/06/2019**	**0967_POT128-PRE_190606**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.21	0.21
POT128	**29/10/2019**	**0967_POT128_191029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.18	0.20
POT128	**15/05/2020**	**0967_POT128**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.17	0.20
POT128	**14/10/2020**	**0967_POT128_201014**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.18	0.18
POT128	**21/04/2021**	**0967_POT128_210421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.16	0.16
POT128	**17/09/2021**	**0967_POT128_210917**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10
POT128	**27/04/2022**	**0967_POT128_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT128	**23/09/2022**	**0967_POT128_220923**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT128	**14/04/2023**	**0967_POT128_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT128	**22/09/2023**	**0967_POT128_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11
POT136	**14/06/2018**	**0967_POT136_180614**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT136	**18/11/2019**	**0967_POT136_191118**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT136	**11/05/2020**	**0967_POT136_200511**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT136	**22/10/2020**	**0967_POT136_201022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT136	**20/04/2021**	**0967_POT136_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT136	**20/04/2021**	**0967_QC112_210420**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06
POT136	**20/04/2021**	**0967_QC212_210420**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.06	<0.1
POT136	**16/09/2021**	**0967_POT136_210916**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT136	**26/04/2022**	**0967_POT136_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT136	**22/09/2022**	**0967_POT136_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT136	**14/04/2023**	**0967_POT136_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT136	**18/09/2023**	**0967_POT136_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT137	**14/06/2018**	**0967_POT137_180614**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT137	**28/11/2018**	**0967_POT137_181128**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT137	**18/11/2019**	**0967_POT137_191118**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT137	**22/10/2020**	**0967_POT137_201022**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT137	**22/04/2021**	**0967_POT137_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01

Table 2 Private Bores analytical results

				PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides							PFAS		
				Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting				0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.02	0.05	0.02	0.05	0.05	0.02	0.05	0.002	0.002	0.01
PFAS NEMP 2020 Drinking Water																		*0.07*		
PFAS NEMP 2020 Recreational Water																		**2**		
Location Code	**Date**	**Field ID**	**Sample Type**																	
POT137	**14/09/2021**	**0967_POT137_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT137	**27/04/2022**	**0967_POT137_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT137	**21/09/2022**	**0967_POT137_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT137	**14/04/2023**	**0967_POT137_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT137	**22/09/2023**	**0967_POT137_230922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT147	**19/10/2018**	**0967_POT147_181019**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08
POT147	**9/05/2019**	**0967_POT147_190509**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT147	**28/10/2019**	**0967_POT147_191028**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14
POT147	**15/05/2020**	**0967_POT147**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07
POT147	**12/10/2020**	**0967_POT147_201012**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT147	**21/04/2021**	**0967_POT147_210421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT147	**14/09/2021**	**0967_POT147_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.16	0.16
POT147	**21/04/2022**	**0967_POT147_220421**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09
POT147	**21/09/2022**	**0967_POT147_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT147	**12/04/2023**	**0967_POT147_230412**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.12
POT147	**12/04/2023**	**0967_QC114_230412**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.12	0.12
POT147	**12/04/2023**	**0967_QC214_230412**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.09*	0.14	0.14
POT147	**14/09/2023**	**0967_POT147_230914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT147	**14/09/2023**	**0967_QC112_230914**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT155	**28/11/2018**	**0967_POT155_181128**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01
POT155	**23/03/2022**	**0967_POT155_220323**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT155	**27/04/2022**	**0967_POT155_220427**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT155	**27/04/2022**	**0967_QC118_220427**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT155	**27/04/2022**	**0967_QC218_220427**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.1
POT155	**19/09/2022**	**0967_POT155_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT155	**14/04/2023**	**0967_POT155_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT155	**18/09/2023**	**0967_POT155_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT159	**8/02/2019**	**0967_POT159_190208**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.10	0.10
POT159	**1/11/2019**	**0967_POT159_191101**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.06	0.06
POT159	**15/05/2020**	**0967_POT159_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.10	0.10
POT159	**29/10/2020**	**0967_POT159_201029**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.06	0.06
POT159	**19/04/2021**	**0967_POT159_210419**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.07	0.07
POT159	**16/09/2021**	**0967_POT159_210916**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.06	0.06
POT159	**2/05/2022**	**0967_POT159_220502**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.08	0.08
POT159	**22/09/2022**	**0967_POT159_220922**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.11	0.11
POT159	**14/04/2023**	**0967_POT159_230414**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.07	0.07
POT159	**15/09/2023**	**0967_POT159_230915**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.04	0.04
POT165	**9/05/2019**	**0967_POT165_190509**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT165	**18/11/2019**	**0967_POT165_191118**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT165	**15/05/2020**	**0967_POT165_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT165	**6/11/2020**	**0967_POT165_201106**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT165	**22/04/2021**	**0967_POT165_210422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT165	**14/09/2021**	**0967_POT165_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT165	**26/04/2022**	**0967_POT165_220426**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT165	**19/09/2022**	**0967_POT165_220919**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.06	0.06
POT165	**18/09/2023**	**0967_POT165_230918**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT181	**10/02/2020**	**0967_POT181_200210**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT181	**15/05/2020**	**0967_POT181_200515**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04
POT181	**13/10/2020**	**0967_POT181_201013**	**Normal**	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.05	0.05
POT181	**20/04/2021**	**0967_POT181_210420**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.24	0.27
POT181	**20/04/2021**	**0967_QC111_210420**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.25	0.29
POT181	**20/04/2021**	**0967_QC211_210420**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.16*	0.2	0.23
POT181	**14/09/2021**	**0967_POT181_210914**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05
POT181	**22/04/2022**	**0967_POT181_220422**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.26*	0.32	0.36
POT181	**22/04/2022**	**0967_QC116_220422**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.34	0.38
POT181	**22/04/2022**	**0967_QC216_220422**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.19*	0.24	0.27
POT181	**21/09/2022**	**0967_POT181_220921**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12
POT181	**12/04/2023**	**0967_POT181_230412**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.23	0.28
POT181	**12/04/2023**	**0967_QC113_230412**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	*0.21*	0.26	0.31
POT181	**12/04/2023**	**0967_QC213_230412**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	*0.21*	0.26	0.29
POT181	**15/09/2023**	**0967_POT181_230915**	**Normal**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03
POT181	**15/09/2023**	**0967_QC117_230915**	**Field Duplicate**	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02
POT181	**15/09/2023**	**0967_QC217_230915**	**Interlab Duplicate**	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.1

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids											PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides				
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001
PFAS NEMP 2020 Drinking Water																*0.56*																	
PFAS NEMP 2020 Recreational Water																**10**																	
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																												
Site drainage channels	**SW002**	**19 Sep 2016**	**PD_SW02**	**Normal**	**EP1608751**	0.5	0.5	3.24	0.06	1.58	<0.02	<0.1	0.13	0.24	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**13 Jun 2019**	**0967_SW002_190613**	**Normal**	**EP1905805**	0.07	0.07	0.38	<0.02	0.45	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**14 Jun 2019**	**0967_SW002_190614**	**Normal**	**EP1905807**	0.03	0.06	0.35	<0.02	0.65	<0.02	<0.1	0.03	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**15 Jun 2019**	**0967_SW002_190615**	**Normal**	**EP1905844**	0.03	0.04	0.28	<0.02	0.62	<0.02	<0.1	<0.02	0.03	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**16 Jun 2019**	**0967_SW002_190616**	**Normal**	**EP1905847**	0.11	0.09	0.47	0.02	0.83	<0.02	<0.1	0.04	0.07	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**17 Jun 2019**	**0967_SW002_190617**	**Normal**	**EP1905846**	0.08	0.07	0.39	0.02	0.91	<0.02	<0.1	0.04	0.06	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.39	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**01 Jul 2020**	**0967_SW002_200701**	**Normal**	**EP2006833**	0.20	0.19	0.73	0.03	0.68	<0.02	<0.1	0.05	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**02 Jul 2020**	**0967_SW002_200702**	**Normal**	**EP2006908**	0.22	0.18	0.86	0.03	0.57	<0.02	<0.1	<0.02	0.09	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**03 Jul 2020**	**0697_SW002_200703**	**Normal**	**EP2006949**	0.18	0.13	0.76	0.03	0.59	<0.02	<0.1	0.03	0.09	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**04 Jul 2020**	**0967_SW002_200704**	**Normal**	**EP2006971**	0.24	0.21	0.95	0.04	0.69	<0.02	<0.1	0.06	0.17	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_QC101_220621**	**Field Duplicate**	**EP2207730**	0.04	0.05	0.42	<0.02	0.27	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_QC201_220621**	**Interlab Duplicate**	**901657**	<0.2	<0.1	0.5	<0.2	0.3	<0.2	<0.1	<0.05	0.06	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_SW002_220621**	**Normal**	**EP2207730**	0.04	0.04	0.42	<0.02	0.26	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**22 Jun 2022**	**0967_SW002_220622**	**Normal**	**EP2207734**	0.09	0.10	0.49	0.03	0.70	<0.02	<0.1	0.04	0.11	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**23 Jun 2022**	**0967_SW002_220623**	**Normal**	**EP2207824**	0.11	0.08	0.54	0.05	0.76	<0.02	<0.1	0.07	0.17	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**24 Jun 2022**	**0967_SW002_220624**	**Normal**	**EP2207891**	0.06	0.07	0.41	0.02	0.22	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**25 Jun 2022**	**0967_SW002_220625**	**Normal**	**EP2207911**	0.06	0.08	0.42	0.03	0.62	<0.02	<0.1	0.06	0.13	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**09 Jun 2023**	**0967_SW002_230609**	**Normal**	**EP2307643**	0.03	0.04	0.20	<0.02	1.38	<0.02	<0.1	0.04	0.08	0.04	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**10 Jun 2023**	**0967_SW002_230610**	**Normal**	**EP2307675**	0.02	0.03	0.20	<0.02	0.72	<0.02	<0.1	0.03	0.08	0.05	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.59	0.06	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**12 Jun 2023**	**0967_SW002_230612**	**Normal**	**EP2307715**	0.02	0.02	0.17	<0.02	0.44	<0.02	<0.1	0.03	0.08	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW002**	**13 Jun 2023**	**0967_SW002_230613**	**Normal**	**EP2307798**	0.02	0.03	0.16	<0.02	0.58	<0.02	<0.1	0.03	0.08	0.05	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW004**	**19 Sep 2016**	**PD_SW04**	**Normal**	**EP1608751**	0.05	0.06	1.04	0.03	0.68	<0.02	<0.1	0.03	0.09	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW005**	**19 Sep 2016**	**PD_SW05**	**Normal**	**EP1608751**	0.98	0.92	11.1	0.34	23.6	<0.02	<0.1	0.53	1.77	0.21	0.44	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW005**	**12 May 2020**	**0967_SW005_200512**	**Normal**	**EP2004831**	7.92	9.70	75.1	5.30	510	1.78	3.8	6.50	26.5	2.22	6.52	0.12	0.09	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	0.36	0.28	1.73	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**19 Sep 2016**	**PD_SW07**	**Normal**	**EP1608751**	7.95	8.2	73.6	6.41	304	0.22	2.1	6.08	22.3	1.57	*4.39*	<0.02	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	0.56	0.26	<0.05	0.41	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**22 Aug 2017**	**PD_SW07**	**Normal**	**EP1709097**	7.05	8.37	62.9	8.67	316	1.47	2.6	4	12.5	1.66	*6.02*	0.18	0.06	0.03	0.05	<0.02	<0.05	<0.05	2.56	0.31	<0.05	1	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**22 Aug 2017**	**WFD_05_01**	**Field Duplicate**	**EP1709097**	7.06	7.92	70.5	8.19	353	0.86	2.6	3.85	14	1.64	*5.94*	0.18	0.05	0.02	0.02	<0.02	<0.05	<0.05	2.56	0.31	<0.05	0.88	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**22 Aug 2017**	**WFS_05_01**	**Interlab Duplicate**	**174225**	6.3	6.8	67	5.2	250	<0.01	2.6	4	18	2.1	*5.7*	0.14	0.04	<0.1	<0.1	<0.5	<0.01	1.1	0.13	<0.02	0.5	<0.05	<0.02	<0.05	<0.1
Site drainage channels	**SW007**	**13 Jun 2019**	**0967_SW007_190613**	**Normal**	**EP1905805**	4.70	6.04	43.2	2.54	122	0.25	2.0	4.26	19.3	2.16	*3.38*	0.06	0.04	0.03	<0.02	<0.02	<0.05	<0.05	0.33	0.14	<0.05	0.34	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**14 Jun 2019**	**0967_SW007_190614**	**Normal**	**EP1905807**	4.46	8.39	37.9	2.37	61.4	0.20	1.1	4.53	21.2	1.88	*3.34*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.52	0.09	<0.05	0.14	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**15 Jun 2019**	**0967_SW007_190615**	**Normal**	**EP1905844**	5.15	6.89	50.4	3.89	181	0.45	2.9	4.81	19.8	2.20	*4.10*	0.08	0.05	0.04	<0.02	<0.02	<0.05	<0.05	0.51	0.17	<0.05	0.28	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**16 Jun 2019**	**0967_SW007_190616**	**Normal**	**EP1905847**	3.70	5.23	46.3	3.27	137	0.34	2.1	3.60	15.6	2.00	*3.88*	0.07	0.04	0.02	<0.02	<0.02	<0.05	<0.05	0.42	0.13	<0.05	0.20	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**17 Jun 2019**	**0967_SW007_190617**	**Normal**	**EP1905846**	4.75	6.88	43.5	3.01	119	0.28	2.7	4.42	19.8	2.11	*3.53*	0.07	0.04	0.03	<0.02	<0.02	<0.05	<0.05	0.39	0.12	<0.05	0.20	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**01 Jul 2020**	**0967_SW007_200701**	**Normal**	**EP2006908**	3.14	3.38	30.8	3.50	224	0.34	1.1	1.99	8.47	0.85	*2.29*	0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.20	0.18	<0.05	0.79	<0.12	<0.05	<0.12	<0.12
Site drainage channels	**SW007**	**02 Jul 2020**	**0967_SW007_200702**	**Normal**	**EP2006908**	4.58	6.08	47.4	4.68	298	2.34	2.2	3.48	14.8	1.30	*3.36*	0.07	0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.74	0.24	<0.05	0.75	<0.12	<0.05	<0.12	<0.12
Site drainage channels	**SW007**	**03 Jul 2020**	**0967_SW007_200703**	**Normal**	**EP2006949**	5.78	5.37	40.2	2.50	161	0.82	3.0	4.39	15.9	1.57	*3.35*	0.09	0.05	0.02	<0.02	<0.02	<0.05	<0.05	0.32	0.13	<0.05	0.52	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**04 Jul 2020**	**0967_SW007_200704**	**Normal**	**EP2006971**	6.90	8.86	54.4	5.18	218	0.50	2.6	5.28	19.4	2.10	*4.89*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	0.54	0.12	<0.05	0.55	<0.12	<0.05	<0.12	<0.12
Site drainage channels	**SW007**	**31 May 2021**	**0967_SW007_210531**	**Normal**	**EP2106116**	5.28	6.20	57.3	4.41	301	4.28	2.3	5.00	16.9	1.92	*4.38*	0.10	0.05	0.07	0.27	0.03	<0.05	<0.05	0.62	0.37	<0.05	2.42	0.03	0.02	<0.05	<0.05
Site drainage channels	**SW007**	**01 Jun 2021**	**0967_SW007_210601**	**Normal**	**EP2106134**	8.76	12.7	106	8.82	531	1.42	4.5	8.51	33.4	3.80	*6.19*	0.14	0.06	0.02	0.06	<0.02	<0.05	<0.05	1.22	0.67	<0.05	1.55	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**02 Jun 2021**	**0967_SW007_210602**	**Normal**	**EP2106195**	5.23	5.29	47.8	3.99	295	1.88	2.4	3.80	14.3	1.99	*3.12*	0.10	0.05	0.02	0.06	0.03	<0.05	<0.05	0.68	0.43	<0.05	1.51	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**03 Jun 2021**	**0967_SW007_210603**	**Normal**	**EP2106262**	5.02	7.67	65.9	5.19	306	2.08	4.4	6.22	23.1	3.82	*5.23*	0.13	0.07	0.04	0.11	0.02	<0.05	<0.05	1.04	0.74	<0.05	1.66	<0.05	0.02	<0.05	<0.05
Site drainage channels	**SW007**	**04 Jun 2021**	**0967_SW007_210604**	**Normal**	**EP2106323**	9.51	19.0	121	12.5	526	2.94	4.9	12.1	49.3	3.92	*9.48*	0.14	0.08	0.03	0.02	<0.05	<0.05	<0.05	1.10	0.54	<0.05	1.44	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**20 Sep 2021**	**0967_SW007_210920**	**Normal**	**EP2111137**	4.84	5.54	46.9	6.12	288	0.81	1.5	3.70	17.1	1.81	*4.20*	0.08	<0.05	<0.05	<0.04	<0.04	<0.11	<0.05	0.59	<0.05	<0.05	0.83	<0.11	<0.04	<0.11	<0.11
Site drainage channels	**SW007**	**21 Jun 2022**	**0967_SW007_220621**	**Normal**	**EP2207730**	6.88	8.92	72.0	6.33	431	1.86	3.2	5.44	24.2	2.35	*6.38*	0.14	0.06	<0.02	<0.02	<0.02	<0.05	<0.05	0.90	0.45	<0.05	1.39	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**22 Jun 2022**	**0967_SW007_220622**	**Normal**	**EP2207734**	6.80	8.58	77.8	7.08	482	4.09	3.0	5.54	22.6	2.41	*5.98*	0.16	0.08	<0.02	0.05	<0.02	<0.05	<0.05	0.88	0.42	<0.05	1.51	<0.05	0.02	<0.05	<0.05
Site drainage channels	**SW007**	**23 Jun 2022**	**0967_SW007_220623**	**Normal**	**EP2207824**	8.70	8.50	79.5	6.64	534	3.43	3.7	4.78	23.6	2.95	*7.27*	0.16	0.07	<0.04	<0.05	<0.04	<0.10	<0.05	0.86	0.50	<0.05	1.97	<0.10	<0.04	<0.10	<0.10
Site drainage channels	**SW007**	**24 Jun 2022**	**0967_SW007_220624**	**Normal**	**EP2207891**	7.46	9.00	86.6	7.50	484	2.89	3.2	5.74	24.2	2.52	*6.38*	0.12	0.08	<0.02	0.05	<0.02	<0.05	<0.05	0.74	0.36	<0.05	1.60	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**25 Jun 2022**	**0967_SW007_220625**	**Normal**	**EP2207911**	6.56	7.41	81.5	4.27	370	0.76	3.6	5.48	23.1	2.66	*5.98*	0.16	0.05	0.03	0.03	<0.02	<0.05	<0.05	1.16	0.42	<0.05	1.00	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**24 Apr 2023**	**0967_SW007_230424**	**Normal**	**EP2305261**	0.72	0.90	10.7	1.00	93.4	0.58	0.6	0.76	2.99	0.36	*1.01*	0.07	0.05	0.03	0.04	<0.02	<0.05	<0.05	0.12	0.32	<0.05	1.42	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**09 Jun 2023**	**0967_SW007_230609**	**Normal**	**EP2307643**	4.74	5.10	27.8	4.22	170	0.80	2.7	3.67	10.6	1.45	*3.96*	0.11	0.07	0.04	0.05	<0.02	<0.05	<0.05	0.37	0.36	<0.05	1.74	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**10 Jun 2023**	**0967_SW007_230610**	**Normal**	**EP2307675**	4.75	4.61	51.2	6.91	199	0.77	2.4	3.88	18.0	1.80	*4.42*	0.11	0.06	0.05	0.07	0.02	<0.05	<0.05	0.46	0.34	<0.05	1.59	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_QC110_230611**	**Field Duplicate**	**EP2307678**	3.07	3.02	29.6	4.19	129	1.40	1.8	2.34	8.28	1.18	*2.72*	0.07	0.03	0.02	0.03	<0.02	<0.05	<0.05	0.28	0.21	<0.05	1.38	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_QC210_230611**	**Interlab Duplicate**	**999535**	4.2	5.1	55	5.0	330	0.86	2.0	3.4	15	0.99	*3.8*	0.07	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	0.27	0.15	<0.01	0.97	<0.01	<0.01	<0.01	<0.01
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_SW007_230611**	**Normal**	**EP2307678**	3.17	3.12	25.4	4.03	126	0.85	1.8	2.35	7.27	1.14	*2.80*	0.07	0.03	0.02	0.02	<0.02	<0.05	<0.05	0.25	0.19	<0.05	1.32	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**12 Jun 2023**	**0967_SW007_230612**	**Normal**	**EP2307715**	4.38	4.09	42.4	5.69	230	3.81	2.2	3.32	15.8	1.46	*3.52*	0.10	0.06	0.07	0.15	0.06	<0.05	<0.05	0.36	0.37	<0.05	2.54	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW007**	**13 Jun 2023**	**0967_SW007_230613**	**Normal**	**EP2307798**	3.82	7.00	65.5	6.22	422	1.66	2.2	3.39	18.0	1.50	*3.56*	0.09	0.05	0.04	0.04	<0.02	<0.05	<0.05	0.41	0.28	<0.05	1.58	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW008**	**19 Sep 2016**	**PD_SW08**	**Normal**	**EP1608751**	4.42	4.45	39.1	2.37	85.6	0.11	1.4	3.18	10.9	0.91	*2.16*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.12	<0.05	<0.05	0.11	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW008**	**20 Sep 2021**	**0967_SW008_210920**	**Normal**	**EP2111137**	3.50	3.31	28.1	1.76	965	0.44	1.6	2.74	11.4	0.93	*2.06*	0.04	<0.04	<0.04	<0.04	<0.04	<0.11	<0.05	0.11	<0.05	<0.05	0.21	<0.11	<0.04	<0.11	<0.11
Site drainage channels	**SW008**	**26 Sep 2022**	**0967_SW008_220926**	**Normal**	**EP2212403**	1.34	1.89	16.5	1.03	50.5	0.17	0.8	1.00	4.58	0.40	*1.00*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.11	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW008**	**25 Sep 2023**	**0967_SW008_230925**	**Normal**	**EP2313262**	1.51	1.67	15.6	0.77	55.5	<0.01	1.0	1.17	6.12	0.50	*1.20*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.19	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**19 Sep 2016**	**PD_SW10**	**Normal**	**EP1608751**	4.81	4.72	36.3	2.25	73.1	0.1	1.5	3.4	11.4	0.97	*2.31*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.12	0.05	<0.05	0.09	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**13 Jun 2019**	**0967_SW010_190613**	**Normal**	**EP1905805**	2.24	2.01	16.2	1.02	47.2	0.08	1.3	1.48	4.57	0.51	*1.16*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**14 Jun 2019**	**0967_SW010_190614**	**Normal**	**EP1905807**	3.86	3.60	17.7	0.86	25.0	0.14	1.4	2.98	9.68	0.44	*1.18*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**15 Jun 2019**	**0967_SW010_190615**	**Normal**	**EP1905844**	2.79	2.72	20.2	0.88	50.5	0.17	1.7	2.01	6.27	0.68	*1.44*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_QC124_190616**	**Field Duplicate**	**EP1905847**	3.29	3.42	17.0	1.09	36.2	0.07	1.9	2.19	7.08	0.78	*1.52*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_QC224_190616**	**Interlab Duplicate**	**228321**	2.7	2.8	19	0.66	31	<0.02	2.0	2.1	7.5	0.67	*1.3*	0.03	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.08	0.02	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_SW010_190616**	**Normal**	**EP1905847**	3.32	3.45	21.6	1.14	42.2	0.06	1.9	2.44	7.28	0.85	*1.67*	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**17 Jun 2019**	**0967_SW010_190617**	**Normal**	**EP1905846**	3.28	3.41	22.6	1.21	42.9	0.18	2.0	2.36	7.49	0.80	*1.64*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**01 Jul 2020**	**0967_SW010_200701**	**Normal**	**EP2006833**	2.48	2.42	18.5	0.96	61.3	0.16	1.1	1.62	6.58	0.50	*1.06*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	0.16	<0.12	<0.05	<0.12	<0.12
Site drainage channels	**SW010**	**02 Jul 2020**	**0967_QC102_200702**	**Field Duplicate**	**EP2006

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides				
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting							0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001
PFAS NEMP 2020 Drinking Water																	*0.56*															
PFAS NEMP 2020 Recreational Water																	**10**															
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																											
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_QC109_210603**	**Field Duplicate**	**EP2106262**		4.29	3.14	21.9	1.56	46.4	0.29	2.9	3.46	9.07	0.80	*1.90*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.11	<0.05	<0.05	0.11	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_QC209_210603**	**Interlab Duplicate**	**800794**		9.1	7.5	51	1.5	110	0.13	5.5	5.8	20	1.5	*3.4*	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.1	0.03	<0.01	0.09	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_SW010_210603**	**Normal**	**EP2106262**		4.04	2.12	15.0	1.35	30.6	0.21	2.8	3.29	5.81	0.74	*1.84*	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.12	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_QC113_210604**	**Field Duplicate**	**EP2106323**		4.13	4.52	28.9	1.75	59.0	0.60	2.8	3.21	12.6	0.87	*1.95*	0.09	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.12	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_QC213_210604**	**Interlab Duplicate**	**801498**		3.3	2.6	21	0.78	54	0.06	2.3	1.9	7.1	0.76	*1.5*	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	0.02	<0.01	0.10	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_SW010_210604**	**Normal**	**EP2106323**		4.34	4.73	29.4	1.60	67.1	0.63	2.8	3.12	12.8	0.89	*1.95*	0.08	0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.11	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**21 Jun 2022**	**0967_SW010_220621**	**Normal**	**EP2207730**		1.05	0.96	9.73	0.48	31.1	0.09	0.6	0.80	2.77	0.25	*0.64*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**22 Jun 2022**	**0967_SW010_220622**	**Normal**	**EP2207734**		1.30	1.53	11.1	0.56	25.4	0.04	0.7	1.01	3.49	0.31	*0.70*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**23 Jun 2022**	**0967_SW010_220623**	**Normal**	**EP2207824**		1.68	1.61	12.8	0.64	31.4	0.17	0.9	1.27	4.10	0.41	*0.87*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**24 Jun 2022**	**0967_SW010_220624**	**Normal**	**EP2207891**		1.81	1.76	14.8	0.60	27.1	0.05	1.0	1.39	4.94	0.42	*0.82*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**26 Sep 2022**	**0967_SW010_220926**	**Normal**	**EP2212403**		2.58	3.58	30.0	1.74	75.0	0.13	1.5	1.91	8.26	0.71	*1.65*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.15	<0.05	<0.05	0.08	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**09 Jun 2023**	**0967_SW010_230609**	**Normal**	**EP2307643**		0.19	0.67	31.2	7.31	34.2	<0.01	0.2	0.46	3.09	0.53	*4.46*	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.32	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**10 Jun 2023**	**0967_SW010_230610**	**Normal**	**EP2307675**		1.63	1.70	10.2	0.49	19.6	0.05	1.1	1.13	4.50	0.36	*0.75*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.06	<0.05	<0.05	0.07	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_QC112_230611**	**Field Duplicate**	**EP2307678**		2.44	2.26	21.5	1.42	50.2	0.21	1.8	1.66	7.51	0.69	*1.59*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.10	<0.05	<0.05	0.07	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_QC212_230611**	**Interlab Duplicate**	**999535**		3.2	2.8	27	1.2	90	<0.1	1.6	2.3	8.0	0.85	*2.0*	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_SW010_230611**	**Normal**	**EP2307678**		2.62	2.36	20.5	1.66	44.2	0.12	1.8	1.73	6.31	0.67	*1.55*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.10	<0.05	<0.05	0.07	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**12 Jun 2023**	**0967_SW010_230612**	**Normal**	**EP2307715**		2.46	2.19	17.9	1.26	36.4	0.06	1.5	1.62	6.77	0.58	*1.36*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**13 Jun 2023**	**0967_SW010_230613**	**Normal**	**EP2307798**		2.65	3.28	22.9	1.31	64.8	0.19	1.9	1.84	7.62	0.62	*1.48*	0.06	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	0.07	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW010**	**25 Sep 2023**	**0967_SW010_230925**	**Normal**	**EP2313262**		2.53	2.78	26.0	1.12	61.0	<0.04	1.8	1.89	7.92	0.82	*1.72*	0.07	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.15	<0.05	<0.05	0.14	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW013**	**19 Sep 2016**	**PD_SW13**	**Normal**	**EP1608751**		3.5	3.29	27	1.33	44	0.07	1	2.42	7.96	0.69	*1.41*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.06	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW013**	**26 Sep 2022**	**0967_SW013_220926**	**Normal**	**EP2212403**		1.93	2.59	20.9	1.14	51.5	0.09	1.1	1.48	6.52	0.56	*1.25*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.09	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW013**	**25 Sep 2023**	**0967_SW013_230925**	**Normal**	**EP2313262**		1.58	1.96	18.3	0.70	38.3	<0.04	1.0	1.08	5.83	0.51	*1.13*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**19 Sep 2016**	**PD_SW15**	**Normal**	**EP1608751**		1.55	1.46	13.8	0.55	25.3	0.13	0.3	1.02	3.6	0.34	*0.71*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**22 Aug 2017**	**PD_SW15**	**Normal**	**EP1709097**		0.56	0.48	5.35	0.23	12.8	0.19	0.3	0.33	1.15	0.09	0.34	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_QC113_190613**	**Field Duplicate**	**EP1905805**		1.41	1.48	10.0	0.40	16.8	0.03	0.9	0.92	4.23	0.34	*0.71*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_QC213_190613**	**Interlab Duplicate**	**228248**		1.6	1.6	12	0.37	16	<0.01	1.1	1.2	4.2	0.39	*0.75*	0.02	<0.01	<0.01	<0.01	<0.01	<0.05	0.04	<0.05	<0.05	<0.05	<0.1	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_SW015_190613**	**Normal**	**EP1905805**		1.84	1.75	13.6	0.57	23.8	0.04	1.0	1.30	4.04	0.47	*0.93*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**14 Jun 2019**	**0967_SW015_190614**	**Normal**	**EP1905807**		1.15	1.24	7.83	0.28	9.66	<0.02	0.4	0.91	3.71	0.23	0.55	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**15 Jun 2019**	**0967_SW015_190615**	**Normal**	**EP1905844**		2.02	1.85	14.7	0.63	27.5	0.09	1.3	1.58	4.68	0.51	*1.06*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**16 Jun 2019**	**0967_SW015_190616**	**Normal**	**EP1905847**		2.03	2.08	15.7	0.58	22.4	0.04	1.2	1.70	4.88	0.56	*1.12*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**17 Jun 2019**	**0967_SW015_190617**	**Normal**	**EP1905846**		2.01	2.12	15.8	0.58	22.0	0.07	1.3	1.65	4.72	0.54	*1.07*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**01 Jul 2020**	**0967_SW015_200701**	**Normal**	**EP2006833**		1.54	1.75	13.5	0.64	43.1	0.14	0.8	1.01	4.12	0.36	*0.68*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**02 Jul 2020**	**0967_SW015_200702**	**Normal**	**EP2006908**		2.11	2.26	13.9	0.71	33.5	0.08	1.0	1.30	4.76	0.36	*0.72*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_QC101_200703**	**Field Duplicate**	**EP2006949**		1.91	2.02	13.0	0.63	20.3	0.08	0.9	1.16	4.66	0.38	*0.77*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_QC201_200703**	**Interlab Duplicate**	**730322**		1.6	1.2	10	0.46	23	<0.01	0.72	0.86	3.3	0.28	*0.76*	0.03	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_SW015_200703**	**Normal**	**EP2006949**		1.70	1.70	12.0	0.53	17.7	0.04	0.8	1.03	4.00	0.35	*0.68*	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**04 Jul 2020**	**0967_SW015_200704**	**Normal**	**EP2006971**		1.59	1.91	10.1	0.52	17.4	0.03	0.6	0.96	3.72	0.34	*0.65*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**31 May 2021**	**0967_SW015_210531**	**Normal**	**EP2106116**		2.10	2.34	12.2	0.67	19.3	0.06	1.0	1.44	5.30	0.44	*1.02*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**01 Jun 2021**	**0967_SW015_210601**	**Normal**	**EP2106134**		2.37	2.18	13.1	0.52	18.3	0.20	1.2	1.63	5.88	0.49	*1.10*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**02 Jun 2021**	**0967_SW015_210602**	**Normal**	**EP2106195**		2.52	2.83	15.5	0.76	20.4	0.16	1.3	1.89	4.63	0.56	*1.27*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**03 Jun 2021**	**0967_SW015_210603**	**Normal**	**EP2106262**		2.57	3.34	16.7	0.80	17.6	0.10	1.3	2.04	5.65	0.57	*1.28*	0.04	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**04 Jun 2021**	**0967_SW015_210604**	**Normal**	**EP2106323**		3.06	3.61	24.0	0.78	23.2	0.10	1.2	1.76	9.14	0.63	*1.28*	0.05	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**09 Aug 2021**	**0967_SW015_210809**	**Normal**	**EP2109323**		0.30	0.35	3.00	0.20	11.8	0.08	0.2	0.24	0.82	0.07	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.04	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**24 Aug 2021**	**0967_SW015_210824**	**Normal**	**EP2109842**		0.13	0.15	1.47	0.09	4.52	<0.02	<0.1	0.10	0.38	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**20 Sep 2021**	**0967_SW015_210920**	**Normal**	**EP2111137**		1.28	1.66	10.9	0.57	20.3	0.06	0.4	0.76	3.75	0.32	0.66	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**28 Apr 2022**	**0967_SW015_220428**	**Normal**	**EP2204967**		<0.02	<0.02	0.23	<0.02	0.68	<0.02	<0.1	<0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**21 Jun 2022**	**0967_SW015_220621**	**Normal**	**EP2207730**		0.56	0.69	6.24	0.32	24.0	0.17	0.4	0.44	1.52	0.15	0.38	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**22 Jun 2022**	**0967_SW015_220622**	**Normal**	**EP2207734**		0.74	0.80	7.53	0.34	15.9	0.17	0.4	0.53	1.82	0.18	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**23 Jun 2022**	**0967_SW015_220623**	**Normal**	**EP2207824**		0.84	0.80	7.23	0.31	10.1	0.04	0.4	0.57	2.15	0.21	0.43	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**24 Jun 2022**	**0967_SW015_220624**	**Normal**	**EP2207891**		0.66	0.75	7.68	0.34	18.8	0.02	0.4	0.54	1.82	0.18	0.44	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**26 Sep 2022**	**0967_SW015_220926**	**Normal**	**EP2212403**		1.39	1.66	13.6	0.49	14.2	0.08	0.8	0.98	4.02	0.33	*0.70*	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**24 Apr 2023**	**0967_SW015_230424**	**Normal**	**EP2305261**		<0.02	<0.02	0.17	<0.02	1.06	0.03	<0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**09 Jun 2023**	**0967_SW015_230609**	**Normal**	**EP2307643**		0.17	0.61	30.9	7.04	29.5	<0.01	0.2	0.42	2.97	0.52	*4.27*	<0.01	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.30	<0.05	<0.05	0.06	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**10 Jun 2023**	**0967_SW015_230610**	**Normal**	**EP2307675**		1.38	1.67	10.7	0.47	15.2	0.03	0.9	1.02	3.83	0.34	*0.74*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**11 Jun 2023**	**0967_SW015_230611**	**Normal**	**EP2307678**		1.13	1.01	10.2	0.44	17.4	0.07	0.8	0.80	3.21	0.28	*0.64*	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**12 Jun 2023**	**0967_SW015_230612**	**Normal**	**EP2307715**		1.47	1.66	9.76	0.48	16.6	0.06	0.8	0.98	4.02	0.34	*0.67*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**13 Jun 2023**	**0967_SW015_230613**	**Normal**	**EP2307798**		1.55	1.88	11.2	0.48	16.1	0.06	1.0	1.10	4.49	0.38	*0.77*	0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW015**	**25 Sep 2023**	**0967_SW015_230925**	**Normal**	**EP2313262**		1.26	2.95	14.0	0.93	18.6	0.07	0.7	0.77	4.19	0.35	*0.73*	0.03	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**19 Sep 2016**	**PD_SW16**	**Normal**	**EP1608751**		0.04	0.04	0.52	<0.02	1.14	<0.02	<0.1	0.06	0.13	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_QC101_191025**	**Field Duplicate**	**EP1911009**		0.09	0.08	0.91	0.05	1.80	<0.02	<0.1	0.04	0.15	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_QC201_191025**	**Interlab Duplicate**	**685044**		0.05	0.07	0.61	0.04	1.9	<0.01	<0.1	<0.05	0.02	0.12	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_SW016_191025**	**Normal**	**EP1911009**		0.09	0.08	0.90	0.05	1.88	<0.02	<0.1	0.03	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**08 May 2020**	**0967_SW016_200508**	**Normal**	**EP2004705**		<0.02	<0.02	0.24	<0.02	0.55	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_QC108_201012**	**Field Duplicate**	**EP2011011**		0.03	0.04	0.40	0.02	1.34	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_QC208_201012**	**Interlab Duplicate**	**750345**		0.02	0.02	0.34	0.02	1.3	<0.01	<0.05	<0.05	0.01	0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05	<0.06	<0.05	<0.05
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_SW016_201012**	**Normal**	**EP2011011**		0.02	0.03	0.40	0.02	1.36	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**08 Sep 2021**	**0967_SW016_210908**	**Normal**	**EP2110527**		0.03	0.04	0.44	0.02	1.16	<0.02	<0.1	<0.02	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**20 Sep 2022**	**0967_QC113_220920**	**Field Duplicate**	**EP2212154**		<0.02	<0.02	0.28	<0.02	0.90	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW016**	**20 Sep 2022**	**0967_QC213_220920**	**Interlab Duplicate**	**926012**		0.01	0.01	0.20	0.01	0.66	<0.01	<0.05	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

								PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids				PFAS - Perfluoroalkyl Sulfonamides				
								Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	N-ethyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)
								µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting								0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001	0.0005	0.001	0.001
PFAS NEMP 2020 Drinking Water																		0.56														
PFAS NEMP 2020 Recreational Water																		10														
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																											
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_QC115_220624**	**Field Duplicate**	**EP2207891**	0.06	0.07	0.68	0.05	2.96	<0.02	<0.1	0.04	0.16	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_QC215_220624**	**Interlab Duplicate**	**902459**	0.05	0.06	0.63	0.05	1.6	<0.01	<0.05	0.06	0.13	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_SW018_220624**	**Normal**	**EP2207891**	0.05	0.06	0.66	0.04	1.63	<0.02	<0.1	0.06	0.14	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**25 Jun 2022**	**0967_SW018_220625**	**Normal**	**EP2207911**	0.06	0.08	0.70	0.05	1.97	<0.02	<0.1	0.05	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**26 Sep 2022**	**0967_SW018_220926**	**Normal**	**EP2212403**	0.03	0.04	0.45	0.03	1.69	<0.02	<0.1	0.02	0.10	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_QC107_230412**	**Field Duplicate**	**EP2304601**	0.05	0.04	0.26	<0.02	0.80	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_QC207_230412**	**Interlab Duplicate**	**982488**	0.04	0.04	0.29	0.02	0.90	<0.01	0.06	0.04	0.10	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_SW018_230412**	**Normal**	**EP2304601**	0.04	0.04	0.27	<0.02	0.80	<0.02	<0.1	<0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.27	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**09 Jun 2023**	**0967_SW018_230609**	**Normal**	**EP2307643**	0.24	0.16	1.40	<0.02	0.02	<0.02	<0.1	0.03	0.17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**10 Jun 2023**	**0967_SW018_230610**	**Normal**	**EP2307675**	0.06	0.06	0.50	0.03	0.96	<0.02	<0.1	0.04	0.12	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**11 Jun 2023**	**0967_SW018_230611**	**Normal**	**EP2307678**	0.04	0.03	0.31	<0.02	0.70	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**12 Jun 2023**	**0967_SW018_230612**	**Normal**	**EP2307715**	0.06	0.06	0.48	0.03	1.04	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**13 Jun 2023**	**0967_SW018_230613**	**Normal**	**EP2307798**	0.06	0.07	0.51	0.03	1.22	<0.02	<0.1	0.04	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW018**	**25 Sep 2023**	**0967_SW018_230925**	**Normal**	**EP2313262**	<0.02	0.03	0.47	0.04	2.71	<0.02	<0.1	<0.02	0.07	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**19 Sep 2016**	**PD_SW20**	**Normal**	**EP1608751**	0.08	0.09	1.12	0.06	2.56	<0.02	<0.1	0.1	0.19	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**22 Aug 2017**	**PD_SW20**	**Normal**	**EP1709097**	0.12	0.11	1.38	0.06	2.3	<0.02	<0.1	0.07	0.21	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**13 Jun 2019**	**0967_SW020_190613**	**Normal**	**EP1905805**	0.06	0.07	0.54	0.04	1.47	<0.01	<0.1	0.03	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.54	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**14 Jun 2019**	**0967_SW020_190614**	**Normal**	**EP1905807**	<0.02	0.05	0.45	0.03	0.99	<0.02	0.5	0.04	0.15	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**15 Jun 2019**	**0967_SW020_190615**	**Normal**	**EP1905844**	0.07	0.08	0.63	0.04	1.57	<0.02	<0.1	0.05	0.14	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**16 Jun 2019**	**0967_SW020_190616**	**Normal**	**EP1905847**	0.08	0.10	0.80	0.05	1.69	<0.02	<0.1	0.06	0.16	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_QC129_190617**	**Field Duplicate**	**EP1905846**	0.07	0.07	0.61	0.04	1.41	<0.02	<0.1	0.05	0.14	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_QC229_190617**	**Interlab Duplicate**	**228323**	0.08	0.08	0.62	0.03	0.81	<0.01	0.04	0.05	0.15	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05	<0.02	<0.05	<0.1
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_SW020_190617**	**Normal**	**EP1905846**	0.06	0.07	0.56	0.04	1.26	<0.02	<0.1	0.04	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**28 Oct 2019**	**0967_SW020_191028**	**Normal**	**EP1911089**	0.05	0.05	0.59	0.02	1.82	<0.02	<0.1	<0.02	0.12	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**12 May 2020**	**0967_SW020_200512**	**Normal**	**EP2004831**	0.10	0.09	0.66	0.05	1.64	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_QC103_200701**	**Field Duplicate**	**EP2006833**	0.09	0.11	0.80	0.05	1.52	<0.02	<0.1	0.09	0.26	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.16	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_QC203_01072020**	**Interlab Duplicate**	**729577**	0.08	0.07	0.73	0.05	1.4	<0.01	<0.05	0.07	0.16	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.14	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_SW020_200701**	**Normal**	**EP2006833**	0.09	0.11	0.82	0.05	1.58	<0.02	<0.1	0.09	0.25	0.04	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.18	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**02 Jul 2020**	**0967_SW020_200702**	**Normal**	**EP2006908**	0.07	0.09	0.79	0.05	1.64	<0.02	<0.1	0.06	0.16	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.10	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**03 Jul 2020**	**0967_SW020_200703**	**Normal**	**EP2006949**	0.06	0.07	0.69	0.04	1.13	<0.02	<0.1	0.04	0.15	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**04 Jul 2020**	**0967_SW020_200704**	**Normal**	**EP2006971**	0.07	0.08	0.72	0.05	1.50	<0.02	<0.1	0.06	0.17	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	0.09	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**13 Oct 2020**	**0967_SW020_201013**	**Normal**	**EP2011097**	0.06	0.07	0.70	0.04	1.63	<0.02	<0.1	0.07	0.18	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_QC113_210420**	**Field Duplicate**	**EP2104297**	0.07	0.08	0.90	0.05	0.87	<0.02	<0.1	0.07	0.35	0.03	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	1.51	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_QC213_210420**	**Interlab Duplicate**	**789529**	0.06	0.07	0.72	0.04	1.2	<0.01	0.1	0.07	0.17	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.1	<0.5	<0.01	0.33	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_SW020_210420**	**Normal**	**EP2104297**	0.08	0.08	0.93	0.05	1.03	<0.01	<0.1	0.07	0.24	0.04	0.05	<0.01	<0.01	<0.01	<0.01	<0.1	<0.5	<0.01	0.31	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1
Site drainage channels	**SW020**	**31 May 2021**	**0967_SW020_210531**	**Normal**	**EP2106116**	0.07	0.07	0.64	0.04	1.29	<0.02	<0.1	0.04	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**01 Jun 2021**	**0967_SW020_210601**	**Normal**	**EP2106134**	0.08	0.09	0.84	0.05	1.08	<0.02	<0.1	<0.02	0.17	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**02 Jun 2021**	**0967_SW020_210602**	**Normal**	**EP2106195**	0.07	0.08	0.72	0.04	1.36	<0.02	<0.1	0.04	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**03 Jun 2021**	**0967_SW020_210603**	**Normal**	**EP2106262**	0.06	0.07	0.64	0.04	1.29	<0.02	<0.1	0.04	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**04 Jun 2021**	**0967_SW020_210604**	**Normal**	**EP2106323**	0.06	0.07	0.60	0.04	1.34	<0.02	<0.1	0.03	0.10	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_QC100_210809**	**Field Duplicate**	**EP2109323**	0.06	0.04	0.51	0.03	1.41	<0.02	<0.1	0.04	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_QC200_210809**	**Interlab Duplicate**	**267025**	0.05	0.05	0.51	0.03	1.3	<0.02	0.03	0.04	0.13	0.01	0.03	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_SW020_210809**	**Normal**	**EP2109323**	0.05	0.06	0.61	0.03	1.51	<0.02	<0.1	0.05	0.17	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**13 Aug 2021**	**0967_SW020_210813**	**Normal**	**EP2109406**	0.07	0.08	0.78	0.04	2.12	<0.02	<0.1	0.05	0.18	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_QC100_210824**	**Field Duplicate**	**EP2109842**	0.06	0.06	0.55	0.04	1.41	<0.02	<0.1	0.04	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_QC200_210824**	**Interlab Duplicate**	**267713**	0.07	0.06	0.66	0.05	1.5	<0.02	0.03	0.06	0.12	0.02	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.02	<0.02	<0.02	<0.1	<0.05	<0.02	<0.05	<0.1
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_SW020_210824**	**Normal**	**EP2109842**	0.06	0.07	0.63	0.04	1.60	<0.02	<0.1	0.04	0.15	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**20 Sep 2021**	**0967_SW020_210920**	**Normal**	**EP2111137**	0.06	0.06	0.67	0.04	2.07	<0.02	<0.1	0.03	0.15	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**21 Apr 2022**	**0967_SW020_220422**	**Normal**	**EP2204671**	0.04	0.04	0.46	0.05	3.18	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**21 Jun 2022**	**0967_SW020_220621**	**Normal**	**EP2207730**	0.04	0.04	0.41	<0.02	0.86	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**22 Jun 2022**	**0967_SW020_220622**	**Normal**	**EP2207734**	0.04	0.06	0.52	0.04	1.04	<0.02	<0.1	0.03	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_QC110_220623**	**Field Duplicate**	**EP2207824**	0.05	0.05	0.48	0.04	1.34	<0.02	<0.1	0.04	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_QC210_220623**	**Interlab Duplicate**	**902466**	0.04	0.04	0.43	0.03	0.65	<0.01	<0.05	0.04	0.10	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_SW020_220623**	**Normal**	**EP2207824**	0.06	0.05	0.51	0.04	1.38	<0.02	<0.1	0.04	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**24 Jun 2022**	**0967_SW020_220624**	**Normal**	**EP2207891**	0.04	0.06	0.52	0.04	1.85	<0.02	<0.1	0.03	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_QC118_220625**	**Field Duplicate**	**EP2207911**	0.06	0.07	0.70	0.04	1.49	<0.02	<0.1	0.05	0.15	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_QC218_220625**	**Interlab Duplicate**	**902463**	0.04	0.05	0.50	0.03	1.57	<0.02	<0.1	0.05	0.14	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_SW020_220625**	**Normal**	**EP2207911**	0.06	0.07	0.72	0.05	1.57	<0.02	<0.1	0.05	0.14	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**22 Sep 2022**	**0967_SW020_220922**	**Normal**	**EP2212311**	0.02	0.03	0.35	0.02	1.34	<0.02	<0.1	0.03	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**12 Apr 2023**	**0967_SW020_230412**	**Normal**	**EP2304601**	0.04	0.03	0.27	<0.02	0.96	<0.02	<0.1	<0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_QC101_230609**	**Field Duplicate**	**EP2307643**	0.03	0.02	0.30	<0.02	0.70	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_QC201_230609**	**Interlab Duplicate**	**999535**	0.02	0.03	0.24	0.02	0.81	<0.01	<0.05	0.02	0.06	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_SW020_230609**	**Normal**	**EP2307643**	0.03	0.04	0.25	<0.02	0.70	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_QC105_230610**	**Field Duplicate**	**EP2307675**	0.04	0.04	0.38	0.02	0.68	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_QC205_230610**	**Interlab Duplicate**	**999535**	0.03	0.04	0.36	0.02	1.0	<0.01	<0.05	0.02	0.06	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_SW020_230610**	**Normal**	**EP2307675**	0.04	0.05	0.38	<0.02	0.69	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.02	<0.05	<0.05
Site drainage channels	**SW020**	**11 Jun 2023**	**0967_SW020_230611**	**Normal**	**EP2307678**	0.03	0.03	0.25	<0.02	0.60	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02

						PFAS				Inorganics												
						N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water								*0.07*															
PFAS NEMP 2020 Recreational Water								**2**															
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																		
Site drainage channels	**SW002**	**19 Sep 2016**	**PD_SW02**	**Normal**	**EP1608751**	<0.02	<0.05	***4.82***		6.43	<1	25	<1	25			31			11	2	1	23
Site drainage channels	**SW002**	**13 Jun 2019**	**0967_SW002_190613**	**Normal**	**EP1905805**	<0.02	<0.05	*0.83*	0.97	1.04													
Site drainage channels	**SW002**	**14 Jun 2019**	**0967_SW002_190614**	**Normal**	**EP1905807**	<0.02	<0.05	*1.00*	1.14	1.20													
Site drainage channels	**SW002**	**15 Jun 2019**	**0967_SW002_190615**	**Normal**	**EP1905844**	<0.02	<0.05	*0.90*	0.98	1.02													
Site drainage channels	**SW002**	**16 Jun 2019**	**0967_SW002_190616**	**Normal**	**EP1905847**	<0.02	<0.05	*1.30*	1.55	1.66													
Site drainage channels	**SW002**	**17 Jun 2019**	**0967_SW002_190617**	**Normal**	**EP1905846**	<0.02	<0.05	*1.30*	1.51	1.60													
Site drainage channels	**SW002**	**01 Jul 2020**	**0967_SW002_200701**	**Normal**	**EP2006833**	<0.02	<0.05	*1.41*	1.78	2.00	<1	34	<1	34	2.30	2.25	47	1.06	14	12	4	4	28
Site drainage channels	**SW002**	**02 Jul 2020**	**0967_SW002_200702**	**Normal**	**EP2006908**	<0.02	<0.05	*1.43*	1.77	1.98	<1	28	<1	28	2.49	2.51	58	0.44	14	12	4	4	34
Site drainage channels	**SW002**	**03 Jul 2020**	**0697_SW002_200703**	**Normal**	**EP2006949**	<0.02	<0.05	*1.35*	1.69	1.85	<1	36	<1	36	2.91	2.86	66		16	14	5	4	38
Site drainage channels	**SW002**	**04 Jul 2020**	**0967_SW002_200704**	**Normal**	**EP2006971**	<0.02	<0.05	*1.64*	2.20	2.45	<1	46	<1	46	3.92	4.16	90	3.05	22	21	7	4	56
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_QC101_220621**	**Field Duplicate**	**EP2207730**	<0.02	<0.05	*0.69*	0.79	0.84	<1	40	<1	40	1.97	2.11	40	3.40	2	10	5	6	24
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_QC201_220621**	**Interlab Duplicate**	**901657**	<0.3	<0.2	*0.8*	0.87	0.87													
Site drainage channels	**SW002**	**21 Jun 2022**	**0967_SW002_220621**	**Normal**	**EP2207730**	<0.02	<0.05	*0.68*	0.77	0.81	<1	40	<1	40	2.00	2.15	41	3.71	2	10	5	6	25
Site drainage channels	**SW002**	**22 Jun 2022**	**0967_SW002_220622**	**Normal**	**EP2207734**	<0.02	<0.05	*1.19*	1.47	1.60	<1	65	<1	65	2.76	3.02	51	4.58	1	16	9	7	30
Site drainage channels	**SW002**	**23 Jun 2022**	**0967_SW002_220623**	**Normal**	**EP2207824**	<0.02	<0.05	*1.30*	1.73	1.86	<1	102	<1	102	3.11	3.57	38	6.88	<10	22	12	7	30
Site drainage channels	**SW002**	**24 Jun 2022**	**0967_SW002_220624**	**Normal**	**EP2207891**	<0.02	<0.05	*0.63*	0.77	0.86	<1	44	<1	44	1.92	1.95	37	0.75	<2	10	5	5	21
Site drainage channels	**SW002**	**25 Jun 2022**	**0967_SW002_220625**	**Normal**	**EP2207911**	<0.02	<0.05	*1.04*	1.33	1.44	<1	71	<1	71	2.21	2.20	28	0.11	<10	14	7	4	19
Site drainage channels	**SW002**	**09 Jun 2023**	**0967_SW002_230609**	**Normal**	**EP2307643**	<0.02	<0.05	*1.58*	1.90	1.94	<1	195	<1	195	12.7	11.8	288	3.53	31	30	10	17	208
Site drainage channels	**SW002**	**10 Jun 2023**	**0967_SW002_230610**	**Normal**	**EP2307675**	<0.02	<0.05	*0.92*	1.80	1.83	<1	203	<1	203	12.8	13.8	281	3.47	41	28	11	16	254
Site drainage channels	**SW002**	**12 Jun 2023**	**0967_SW002_230612**	**Normal**	**EP2307715**	<0.02	<0.05	*0.61*	0.82	0.84	<1	210	<1	210	13.0	14.0	283	3.42	41	42	14	19	235
Site drainage channels	**SW002**	**13 Jun 2023**	**0967_SW002_230613**	**Normal**	**EP2307798**	<0.02	<0.05	*0.74*	0.96	0.99	<1	202	<1	202	12.8	13.6	280	3.12	41	39	13	18	233
Site drainage channels	**SW004**	**19 Sep 2016**	**PD_SW04**	**Normal**	**EP1608751**	<0.02	<0.05	*1.72*		1.98	<1	39	<1	39			24			12	2	1	23
Site drainage channels	**SW005**	**19 Sep 2016**	**PD_SW05**	**Normal**	**EP1608751**	<0.02	<0.05	***34.7***		39.9	<1	4	<1	4			18			2	<1		13
Site drainage channels	**SW005**	**12 May 2020**	**0967_SW005_200512**	**Normal**	**EP2004831**	<0.05	<0.12	***585***	639	658	<1	209	<1	209	11.2	10.3	240	4.30	15	58	12	14	140
Site drainage channels	**SW007**	**19 Sep 2016**	**PD_SW07**	**Normal**	**EP1608751**	<0.02	<0.05	***377.6***		438	<1	62	<1	62			72			24	4	3	51
Site drainage channels	**SW007**	**22 Aug 2017**	**PD_SW07**	**Normal**	**EP1709097**	<0.02	<0.05	***378.9***	416	435	<1	185	<1	185			39			57	5	8	33
Site drainage channels	**SW007**	**22 Aug 2017**	**WFD_05_01**	**Field Duplicate**	**EP1709097**	<0.02	<0.05	***423.5***	461	480													
Site drainage channels	**SW007**	**22 Aug 2017**	**WFS_05_01**	**Interlab Duplicate**	**174225**	<0.02		***317***															
Site drainage channels	**SW007**	**13 Jun 2019**	**0967_SW007_190613**	**Normal**	**EP1905805**	<0.02	<0.05	***165***	201	211													
Site drainage channels	**SW007**	**14 Jun 2019**	**0967_SW007_190614**	**Normal**	**EP1905807**	<0.02	<0.05	***99.3***	136	148													
Site drainage channels	**SW007**	**15 Jun 2019**	**0967_SW007_190615**	**Normal**	**EP1905844**	<0.02	<0.05	***231***	271	283													
Site drainage channels	**SW007**	**16 Jun 2019**	**0967_SW007_190616**	**Normal**	**EP1905847**	<0.02	<0.05	***183***	215	224													
Site drainage channels	**SW007**	**17 Jun 2019**	**0967_SW007_190617**	**Normal**	**EP1905846**	<0.02	<0.05	***162***	200	211													
Site drainage channels	**SW007**	**01 Jul 2020**	**0967_SW007_200701**	**Normal**	**EP2006908**	<0.05	<0.12	***255***	273	281	<1	120	<1	120	4.38	4.50	66	1.31	6	30	6	8	53
Site drainage channels	**SW007**	**02 Jul 2020**	**0967_SW007_200702**	**Normal**	**EP2006908**	<0.05	<0.12	***345***	376	390	<1	142	<1	142	5.50	5.41	90	0.87	6	37	8	8	62
Site drainage channels	**SW007**	**03 Jul 2020**	**0967_SW007_200703**	**Normal**	**EP2006949**	<0.02	<0.05	***201***	236	245	<1	151	<1	151	6.15	5.68	108	3.95	4	39	8	8	66
Site drainage channels	**SW007**	**04 Jul 2020**	**0967_SW007_200704**	**Normal**	**EP2006971**	<0.05	<0.12	***272***	314	329	<1	167	<1	167	6.71	6.63	113	0.62	9	48	9	9	75
Site drainage channels	**SW007**	**31 May 2021**	**0967_SW007_210531**	**Normal**	**EP2106116**	0.03	<0.05	***358***	395	413	<1	62	<1	62	3.46	3.24	67	3.33	16	23	2	9	39
Site drainage channels	**SW007**	**01 Jun 2021**	**0967_SW007_210601**	**Normal**	**EP2106134**	<0.02	<0.05	***637***	704	729	<1	110	<1	110	6.14	5.39	103	6.56	50	40	5	6	65
Site drainage channels	**SW007**	**02 Jun 2021**	**0967_SW007_210602**	**Normal**	**EP2106195**	<0.02	<0.05	***343***	375	388	<1	103	<1	103	5.63	5.52	109	0.98	24	40	4	6	70
Site drainage channels	**SW007**	**03 Jun 2021**	**0967_SW007_210603**	**Normal**	**EP2106262**	0.03	<0.05	***372***	421	438	<1	123	<1	123	6.19	6.05	113	1.13	26	48	5	6	71
Site drainage channels	**SW007**	**04 Jun 2021**	**0967_SW007_210604**	**Normal**	**EP2106323**	<0.02	<0.05	***647***	738	774	<1	141	<1	141	7.00	6.50	126	3.64	30	54	5	7	74
Site drainage channels	**SW007**	**20 Sep 2021**	**0967_SW007_210920**	**Normal**	**EP2111137**	<0.04	<0.11	***335***	369	382	<1	142	<1	142	6.52	6.25	110	2.10	28	46	8	10	70
Site drainage channels	**SW007**	**21 Jun 2022**	**0967_SW007_220621**	**Normal**	**EP2207730**	<0.02	<0.05	***503***	553	572	<1	128	<1	128	4.61	5.18	50	5.74	31	43	6	9	53
Site drainage channels	**SW007**	**22 Jun 2022**	**0967_SW007_220622**	**Normal**	**EP2207734**	0.02	<0.05	***560***	607	629	<1	136	<1	136	4.88	5.52	53	6.21	32	46	6	10	57
Site drainage channels	**SW007**	**23 Jun 2022**	**0967_SW007_220623**	**Normal**	**EP2207824**	<0.04	<0.10	***614***	666	687	<1	126	<1	126	4.57	5.21	50	6.53	31	42	6	9	55
Site drainage channels	**SW007**	**24 Jun 2022**	**0967_SW007_220624**	**Normal**	**EP2207891**	<0.02	<0.05	***571***	621	642	<1	131	<1	131	4.87	4.73	54	1.46	35	39	5	6	51
Site drainage channels	**SW007**	**25 Jun 2022**	**0967_SW007_220625**	**Normal**	**EP2207911**	<0.02	<0.05	***452***	500	514	<1	145	<1	145	5.30	5.30	57	0.08	38	44	6	7	56
Site drainage channels	**SW007**	**24 Apr 2023**	**0967_SW007_230424**	**Normal**	**EP2305261**	<0.02	<0.05	***104***	111	115	<1	34	<1	34	1.87	1.68	37	5.24	7	7	1	3	27
Site drainage channels	**SW007**	**09 Jun 2023**	**0967_SW007_230609**	**Normal**	**EP2307643**	0.02	<0.05	***198***	226	238	<1	84	<1	84	3.58	3.52	54	0.86	18	26	5	6	38
Site drainage channels	**SW007**	**10 Jun 2023**	**0967_SW007_230610**	**Normal**	**EP2307675**	<0.02	<0.05	***250***	286	300	<1	191	<1	191	5.74	4.98	47	7.14	29	51	5	6	43
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_QC110_230611**	**Field Duplicate**	**EP2307678**	<0.02	<0.05	***159***	178	189													
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_QC210_230611**	**Interlab Duplicate**	**999535**	<0.05	<0.05	***385***	414.81	431.01													
Site drainage channels	**SW007**	**11 Jun 2023**	**0967_SW007_230611**	**Normal**	**EP2307678**	<0.02	<0.05	***151***	170	180	<1	73	<1	73	2.57	2.84	27	4.82	17	23	3	7	29
Site drainage channels	**SW007**	**12 Jun 2023**	**0967_SW007_230612**	**Normal**	**EP2307715**	0.03	<0.05	***272***	304	320	<1	114	<1	114	4.22	4.44	52	2.49	23	32	5	10	50
Site drainage channels	**SW007**	**13 Jun 2023**	**0967_SW007_230613**	**Normal**	**EP2307798**	<0.02	<0.05	***488***	521	537	<1	120	<1	120	5.24	5.60	83	3.37	24	38	6	10	68
Site drainage channels	**SW008**	**19 Sep 2016**	**PD_SW08**	**Normal**	**EP1608751**	<0.02	<0.05	***124.7***		155	<1	12	<1	12			32			5	2	1	27
Site drainage channels	**SW008**	**20 Sep 2021**	**0967_SW008_210920**	**Normal**	**EP2111137**	<0.04	<0.11	***993***	1,020	1,020	<1	62	<1	62	2.85	2.82	46	0.50	15	17	4	3	36
Site drainage channels	**SW008**	**26 Sep 2022**	**0967_SW008_220926**	**Normal**	**EP2212403**	<0.02	<0.05	***67.0***	76.2	79.4	<1	72	<1	72	2.33	2.12	28	4.86	5	15	3	3	24
Site drainage channels	**SW008**	**25 Sep 2023**	**0967_SW008_230925**	**Normal**	**EP2313262**	<0.02	<0.05	***71.1***	82.7	85.4	<1	86	<1	86	2.80	2.95	31	2.62	10	20	4	4	35
Site drainage channels	**SW010**	**19 Sep 2016**	**PD_SW10**	**Normal**	**EP1608751**	<0.02	<0.05	***109.4***		141	<1	8	<1	8			32			4	2	2	23
Site drainage channels	**SW010**	**13 Jun 2019**	**0967_SW010_190613**	**Normal**	**EP1905805**	<0.02	<0.05	***63.4***	74.7	77.9													
Site drainage channels	**SW010**	**14 Jun 2019**	**0967_SW010_190614**	**Normal**	**EP1905807**	<0.02	<0.05	***42.7***	62.2	66.9													
Site drainage channels	**SW010**	**15 Jun 2019**	**0967_SW010_190615**	**Normal**	**EP1905844**	<0.02	<0.05	***70.7***	85.6	89.5													
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_QC124_190616**	**Field Duplicate**	**EP1905847**	<0.02	<0.05	***53.2***	70.0	74.6													
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_QC224_190616**	**Interlab Duplicate**	**228321**	<0.02	<0.5	***50***		70													
Site drainage channels	**SW010**	**16 Jun 2019**	**0967_SW010_190616**	**Normal**	**EP1905847**	<0.02	<0.05	***63.8***	81.3	86.0													
Site drainage channels	**SW010**	**17 Jun 2019**	**0967_SW010_190617**	**Normal**	**EP1905846**	<0.02	<0.05	***65.5***	83.1	88.0													
Site drainage channels	**SW010**	**01 Jul 2020**	**0967_SW010_200701**	**Normal**	**EP2006833**	<0.05	<0.12	***79.8***	93.1	96.8	<1	52	<1	52	2.59	2.69	55	1.90	<5	12	4	6	37
Site drainage channels	**SW010**	**02 Jul 2020**	**0967_QC102_200702**	**Field Duplicate**	**EP2006908**	<0.02	<0.05	***62.4***	73.8	77.4	<1	56	<1	56	2.74	2.82	53	1.40	6	12	5	6	38
Site drainage channels	**SW010**	**02 Jul 2020**	**0967_QC202_200702**	**Interlab Duplicate**	**729906**	<0.05	<0.05	***66***	74.17	76.59	<10	52					52						
Site drainage channels	**SW010**	**02 Jul 2020**	**0967_SW010_200702**	**Normal**	**EP2006908**	<0.05	<0.12	***64.9***	75.5	78.4	<1	56	<1	56	2.76	2.87	53	1.90	7	13	5	6	38
Site drainage channels	**SW010**	**03 Jul 2020**	**0967_SW010_200703**	**Normal**	**EP2006949**	<0.02	<0.05	***66.5***	83.0	88.3	<1	53	<1	53	2.77	2.73	54		9	12	4	6	38
Site drainage channels	**SW010**	**04 Jul 2020**	**0967_SW010_200704**	**Normal**	**EP2006971**	<0.05	<0.12	***76.0***	89.3	93.2	<1	54	<1	54	2.78	2.75	53	0.54	10	12	4	5	39
Site drainage channels	**SW010**	**31 May 2021**	**0967_QC101_210531**	**Field Duplicate**	**EP2106116**	<0.02	<0.05	***49.8***	67.5	73.0	<1	24	<1	24	1.38	1.53	26	5.20	8	6	2	6	21
Site drainage channels	**SW010**	**31 May 2021**	**0967_SW010_210531**	**Normal**	**EP2106116**	<0.02	<0.05	***53.7***	71.9	77.4	<1	26	<1	26	1.41	1.56	25	4.86	9	6	2	7	21
Site drainage channels	**SW010**	**01 Jun 2021**	**0967_QC101_210601**	**Field Duplicate**	**EP2106134**	<0.02	<0.05	***76.7***	98.0	103	<1	28	<1	28	1.48	1.60	26	3.89	9	6	2	7	22
Site drainage channels	**SW010**	**01 Jun 2021**	**0967_QC201_210601**	**Interlab Duplicate**	**800042**	<0.05	<0.05	***79***	97.87	104.68	<10	30	<20	30			25						
Site drainage channels	**SW010**	**01 Jun 2021**	**0967_SW010_210601**	**Normal**	**EP2106134**	<0.02	<0.05	***79.9***	101	106	<1	26	<1	26	1.44	1.60	26	5.25	9	6	2	7	22
Site drainage channels	**SW010**	**02 Jun 2021**	**0967_QC105_210602**	**Field Duplicate**	**EP2106195**	<0.02	<0.05	***87.0***	111	117	<1	30	<1	30	1.58	1.64	26	1.88	12	6	2	7	23
Site drainage channels	**SW010**	**02 Jun 2021**	**0967_QC205_210602**	**Interlab Duplicate**	**800405**	<0.05	<0.05	***101***	119.58	125.74	<10	29	<20	29			28						
Site drainage channels	**SW010**	**02 Jun 2021**	**0967_SW010_210602**	**Normal**	**EP2106195**	<0.02	<0.05	***72.2***	96.0	102	<1	30	<1	30	1.61	1.64	27	1.00	12	6	2	7	23

					PFAS				Inorganics												
					N-Ethyl perfluorooctane sulfonamidoacetic acid (EFOSAA) µg/L	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE) µg/L	Sum of PFHxS and PFOS µg/L	Sum of PFAS (WA DER List) µg/L	Sum of PFAS µg/L	Carbonate Alkalinity (as CaCO3) mg/L	Alkalinity (Bicarbonate as CaCO3) mg/L	Alkalinity (Hydroxide) as CaCO3 mg/L	Alkalinity (total) as CaCO3 mg/L	Anions Total meq/L	Cations Total meq/L	Chloride mg/L	Ionic Balance %	Sulphate as SO4 - Turbidimetric (filtered) mg/L	Calcium (filtered) mg/L	Magnesium (Filtered) mg/L	Potassium (Filtered) mg/L	Sodium (Filtered) mg/L
LOR - Limit of Reporting					0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water							*0.07*															
PFAS NEMP 2020 Recreational Water							**2**															
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																	
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_QC109_210603**	**Field Duplicate**	**EP2106262**	<0.02	<0.05	***68.3***	90.8	96.0	<1	32	<1	32	1.63	1.78	27	4.41	11	7	2	7	25
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_QC209_210603**	**Interlab Duplicate**	**800794**	<0.05	<0.05	***161***	206.43	220.95	<10	31	<20	31			33						
Site drainage channels	**SW010**	**03 Jun 2021**	**0967_SW010_210603**	**Normal**	**EP2106262**	<0.02	<0.05	***45.6***	64.2	68.1	<1	31	<1	31	1.63	1.78	27	4.38	12	7	2	7	25
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_QC113_210604**	**Field Duplicate**	**EP2106323**	<0.02	<0.05	***87.9***	114	121	<1	33	<1	33	1.70	1.78	28	2.34	12	7	2	7	25
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_QC213_210604**	**Interlab Duplicate**	**801498**	<0.05	<0.05	***75***	91.97	96.85	<10	38	<20	38			35						
Site drainage channels	**SW010**	**04 Jun 2021**	**0967_SW010_210604**	**Normal**	**EP2106323**	<0.02	<0.05	***96.5***	122	130	<1	34	<1	34	1.70	1.80	28	3.08	11	7	2	8	25
Site drainage channels	**SW010**	**21 Jun 2022**	**0967_SW010_220621**	**Normal**	**EP2207730**	<0.02	<0.05	***40.8***	46.9	48.6	<1	34	<1	34	1.10	1.13	15	1.31	<5	6	2	4	13
Site drainage channels	**SW010**	**22 Jun 2022**	**0967_SW010_220622**	**Normal**	**EP2207734**	<0.02	<0.05	***36.5***	44.0	46.2	<1	37	<1	37	1.25	1.31	18	2.37	<2	7	3	4	14
Site drainage channels	**SW010**	**23 Jun 2022**	**0967_SW010_220623**	**Normal**	**EP2207824**	<0.02	<0.05	***44.2***	53.4	55.9	<1	41	<1	41	1.30	1.52	17	7.84	<5	9	3	5	16
Site drainage channels	**SW010**	**24 Jun 2022**	**0967_SW010_220624**	**Normal**	**EP2207891**	<0.02	<0.05	***41.9***	52.3	54.8	<1	38	<1	38	1.39	1.20	21	7.47	2	7	2	3	14
Site drainage channels	**SW010**	**26 Sep 2022**	**0967_SW010_220926**	**Normal**	**EP2212403**	<0.02	<0.05	***105***	122	127	<1	41	<1	41	1.88	1.80	36	1.97	2	7	3	3	26
Site drainage channels	**SW010**	**09 Jun 2023**	**0967_SW010_230609**	**Normal**	**EP2307643**	<0.02	<0.05	***65.4***	74.6	82.7	<1	30	<1	30	1.58	1.52	28	1.89	9	4	2	6	23
Site drainage channels	**SW010**	**10 Jun 2023**	**0967_SW010_230610**	**Normal**	**EP2307675**	<0.02	<0.05	***29.8***	39.3	41.5	<1	36	<1	36	1.89	2.14	32	6.05	13	13	3	6	25
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_QC112_230611**	**Field Duplicate**	**EP2307678**	<0.02	<0.05	***71.7***	87.5	91.5	<1	42	<1	42	1.68	1.58	26	2.84	5	4	1	5	27
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_QC212_230611**	**Interlab Duplicate**	**999535**	<0.05	<0.05	***117***	135.05	140.97													
Site drainage channels	**SW010**	**11 Jun 2023**	**0967_SW010_230611**	**Normal**	**EP2307678**	<0.02	<0.05	***64.7***	79.5	83.7	<1	42	<1	42	1.68	1.63	26	1.29	5	5	1	5	27
Site drainage channels	**SW010**	**12 Jun 2023**	**0967_SW010_230612**	**Normal**	**EP2307715**	<0.02	<0.05	***54.3***	68.7	72.2	<1	42	<1	42	1.75	2.02	27	7.19	7	6	2	8	31
Site drainage channels	**SW010**	**13 Jun 2023**	**0967_SW010_230613**	**Normal**	**EP2307798**	<0.02	<0.05	***87.7***	104	109	<1	45	<1	45	1.74	2.04	27	7.73	4	5	2	9	32
Site drainage channels	**SW010**	**25 Sep 2023**	**0967_SW010_230925**	**Normal**	**EP2313262**	<0.02	<0.05	***87.0***	104	108	<1	50	<1	50	2.35	2.48	39	2.65	12	9	3	5	38
Site drainage channels	**SW013**	**19 Sep 2016**	**PD_SW13**	**Normal**	**EP1608751**	<0.02	<0.05	***71***		92.8	<1	14	<1	14			31			6	2	2	21
Site drainage channels	**SW013**	**26 Sep 2022**	**0967_SW013_220926**	**Normal**	**EP2212403**	<0.02	<0.05	***72.4***	85.3	89.2	<1	55	<1	55	2.08	1.88	32	5.22	4	9	3	2	26
Site drainage channels	**SW013**	**25 Sep 2023**	**0967_SW013_230925**	**Normal**	**EP2313262**	<0.02	<0.05	***56.6***	67.8	70.5	<1	58	<1	58	2.43	2.51	37	1.66	11	12	3	4	36
Site drainage channels	**SW015**	**19 Sep 2016**	**PD_SW15**	**Normal**	**EP1608751**	<0.02	<0.05	***39.1***		48.8	<1	22	<1	22			26			6	2	3	20
Site drainage channels	**SW015**	**22 Aug 2017**	**PD_SW15**	**Normal**	**EP1709097**	<0.02	<0.05	***18.15***	20.9	21.9	<1	34	<1	34			24			9	3	4	16
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_QC113_190613**	**Field Duplicate**	**EP1905805**	<0.02	<0.05	***26.8***	35.3	37.2													
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_QC213_190613**	**Interlab Duplicate**	**228248**	<0.02	<0.5	***28***		39													
Site drainage channels	**SW015**	**13 Jun 2019**	**0967_SW015_190613**	**Normal**	**EP1905805**	<0.02	<0.05	***37.4***	47.0	49.4													
Site drainage channels	**SW015**	**14 Jun 2019**	**0967_SW015_190614**	**Normal**	**EP1905807**	<0.02	<0.05	***17.5***	24.4	26.0													
Site drainage channels	**SW015**	**15 Jun 2019**	**0967_SW015_190615**	**Normal**	**EP1905844**	<0.02	<0.05	***42.2***	53.4	56.0													
Site drainage channels	**SW015**	**16 Jun 2019**	**0967_SW015_190616**	**Normal**	**EP1905847**	<0.02	<0.05	***38.1***	49.6	52.3													
Site drainage channels	**SW015**	**17 Jun 2019**	**0967_SW015_190617**	**Normal**	**EP1905846**	<0.02	<0.05	***37.8***	49.1	51.9													
Site drainage channels	**SW015**	**01 Jul 2020**	**0967_SW015_200701**	**Normal**	**EP2006833**	<0.02	<0.05	***56.6***	65.1	67.8	<1	48	<1	48	2.37	2.40	44	0.65	8	11	4	5	32
Site drainage channels	**SW015**	**02 Jul 2020**	**0967_SW015_200702**	**Normal**	**EP2006908**	<0.02	<0.05	***47.4***	57.6	60.8	<1	44	<1	44	2.44	2.44	48	<0.01	10	11	4	5	33
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_QC101_200703**	**Field Duplicate**	**EP2006949**	<0.02	<0.05	***33.3***	43.1	45.9	<1	45	<1	45	2.40	2.40	46		10	12	4	5	31
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_QC201_200703**	**Interlab Duplicate**	**730322**	<0.05	<0.05	***33***	40.52	43.34	<10	38					46						
Site drainage channels	**SW015**	**03 Jul 2020**	**0967_SW015_200703**	**Normal**	**EP2006949**	<0.02	<0.05	***29.7***	38.3	40.6	<1	45	<1	45	2.43	2.40	47		10	11	4	5	32
Site drainage channels	**SW015**	**04 Jul 2020**	**0967_SW015_200704**	**Normal**	**EP2006971**	<0.02	<0.05	***27.5***	35.4	37.8	<1	48	<1	48	2.44	2.41	45		10	13	4	5	30
Site drainage channels	**SW015**	**31 May 2021**	**0967_SW015_210531**	**Normal**	**EP2106116**	<0.02	<0.05	***31.5***	42.8	45.9	<1	32	<1	32	1.57	1.74	25	4.90	11	8	2	5	24
Site drainage channels	**SW015**	**01 Jun 2021**	**0967_SW015_210601**	**Normal**	**EP2106134**	<0.02	<0.05	***31.4***	44.1	47.0	<1	35	<1	35	1.74	1.95	28	5.84	12	9	3	5	26
Site drainage channels	**SW015**	**02 Jun 2021**	**0967_SW015_210602**	**Normal**	**EP2106195**	<0.02	<0.05	***35.9***	48.1	51.9	<1	37	<1	37	1.90	2.00	31	2.38	14	9	3	5	27
Site drainage channels	**SW015**	**03 Jun 2021**	**0967_SW015_210603**	**Normal**	**EP2106262**	<0.02	<0.05	***34.3***	47.7	52.0	<1	39	<1	39	2.01	2.22	34	5.04	13	10	3	5	31
Site drainage channels	**SW015**	**04 Jun 2021**	**0967_SW015_210604**	**Normal**	**EP2106323**	<0.02	<0.05	***47.2***	64.3	68.8	<1	39	<1	39	2.14	2.30	38	3.49	14	11	3	6	31
Site drainage channels	**SW015**	**09 Aug 2021**	**0967_SW015_210809**	**Normal**	**EP2109323**	<0.02	<0.05	***14.8***	16.6	17.3													
Site drainage channels	**SW015**	**24 Aug 2021**	**0967_SW015_210824**	**Normal**	**EP2109842**	<0.02	<0.05	***5.99***	6.73	6.97	<1	168	<1	168	4.66	4.23	35	4.80	15	37	9	3	36
Site drainage channels	**SW015**	**20 Sep 2021**	**0967_SW015_210920**	**Normal**	**EP2111137**	<0.02	<0.05	***31.2***	38.4	40.7	<1	54	<1	54	2.66	2.57	48	1.72	11	15	4	4	32
Site drainage channels	**SW015**	**28 Apr 2022**	**0967_SW015_220428**	**Normal**	**EP2204967**	<0.02	<0.05	*0.91*	0.94	0.94	<1	60	<1	60	2.17	2.53	24	7.71	14	24	3	5	22
Site drainage channels	**SW015**	**21 Jun 2022**	**0967_SW015_220621**	**Normal**	**EP2207730**	<0.02	<0.05	***30.2***	33.7	35.0	<1	37	<1	37	1.16	1.22	15	2.63	<5	7	2	4	14
Site drainage channels	**SW015**	**22 Jun 2022**	**0967_SW015_220622**	**Normal**	**EP2207734**	<0.02	<0.05	***23.4***	27.5	28.9	<1	37	<1	37	1.24	1.31	17	2.84	1	7	2	4	16
Site drainage channels	**SW015**	**23 Jun 2022**	**0967_SW015_220623**	**Normal**	**EP2207824**	<0.02	<0.05	***17.3***	21.9	23.1	<1	41	<1	41	1.33	1.45	18	4.46	<1	9	3	4	15
Site drainage channels	**SW015**	**24 Jun 2022**	**0967_SW015_220624**	**Normal**	**EP2207891**	<0.02	<0.05	***26.5***	30.5	31.7	<1	45	<1	45	1.50	1.29	20	7.57	2	8	2	3	15
Site drainage channels	**SW015**	**26 Sep 2022**	**0967_SW015_220926**	**Normal**	**EP2212403**	<0.02	<0.05	***27.8***	36.0	38.3	<1	52	<1	52	2.14	1.95	36	4.50	4	10	3	3	26
Site drainage channels	**SW015**	**24 Apr 2023**	**0967_SW015_230424**	**Normal**	**EP2305261**	<0.02	<0.05	*1.23*	1.26	1.29	<1	13	<1	13	0.82	0.82	17	<0.01	4	5	<1	2	12
Site drainage channels	**SW015**	**09 Jun 2023**	**0967_SW015_230609**	**Normal**	**EP2307643**	<0.02	<0.05	***60.4***	69.2	77.0	<1	30	<1	30	1.55	1.45	27	3.32	9	4	2	5	22
Site drainage channels	**SW015**	**10 Jun 2023**	**0967_SW015_230610**	**Normal**	**EP2307675**	<0.02	<0.05	***25.9***	34.1	36.3	<1	36	<1	36	1.74	1.90	28	4.58	11	12	3	4	22
Site drainage channels	**SW015**	**11 Jun 2023**	**0967_SW015_230611**	**Normal**	**EP2307678**	<0.02	<0.05	***27.6***	34.5	36.0	<1	35	<1	35	1.32	1.20	22	4.86	<1	4	<1	5	20
Site drainage channels	**SW015**	**12 Jun 2023**	**0967_SW015_230612**	**Normal**	**EP2307715**	<0.02	<0.05	***26.4***	34.6	36.9	<1	40	<1	40	1.67	1.70	25	0.82	8	5	2	6	26
Site drainage channels	**SW015**	**13 Jun 2023**	**0967_SW015_230613**	**Normal**	**EP2307798**	<0.02	<0.05	***27.3***	36.6	39.0	<1	40	<1	40	1.75	1.97	27	5.90	9	11	3	5	24
Site drainage channels	**SW015**	**25 Sep 2023**	**0967_SW015_230925**	**Normal**	**EP2313262**	<0.02	<0.05	***32.6***	40.6	44.6	<1	65	<1	65	2.50	2.62	36	2.35	9	12	4	5	36
Site drainage channels	**SW016**	**19 Sep 2016**	**PD_SW16**	**Normal**	**EP1608751**	<0.02	<0.05	*1.66*		1.94	<1	45	<1	45			19			13	3	2	20
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_QC101_191025**	**Field Duplicate**	**EP1911009**	<0.02	<0.05	***2.71***	3.02	3.15	<1	126	<1	126	3.49	3.04	30	6.78	6	25	4	3	32
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_QC201_191025**	**Interlab Duplicate**	**685044**	<0.05	<0.05	***2.51***	2.73	2.86	<10	130					29						
Site drainage channels	**SW016**	**25 Oct 2019**	**0967_SW016_191025**	**Normal**	**EP1911009**	<0.02	<0.05	***2.78***	3.07	3.20	<1	125	<1	125	3.47	3.14	30	4.99	6	26	4	3	33
Site drainage channels	**SW016**	**08 May 2020**	**0967_SW016_200508**	**Normal**	**EP2004705**	<0.02	<0.05	*0.79*	0.82	0.82	<1	76	<1	76	3.92	4.13	66	2.58	26	28	5	4	51
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_QC108_201012**	**Field Duplicate**	**EP2011011**	<0.02	<0.05	*1.74*	1.86	1.92	<1	95	<1	95	3.81	3.46	59	4.83	12	22	4	3	45
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_QC208_201012**	**Interlab Duplicate**	**750345**	<0.05	<0.05	*1.64*	1.73	1.77	<10	70	<20	70			52						
Site drainage channels	**SW016**	**12 Oct 2020**	**0967_SW016_201012**	**Normal**	**EP2011011**	<0.02	<0.05	*1.76*	1.87	1.92	<1	74	<1	74	3.56	3.41	65	2.16	12	21	4	3	45
Site drainage channels	**SW016**	**08 Sep 2021**	**0967_SW016_210908**	**Normal**	**EP2110527**	<0.02	<0.05	*1.60*	1.71	1.77	<1	64	<1	64	2.47	2.23	35	5.25	10	16	3	2	26
Site drainage channels	**SW016**	**20 Sep 2022**	**0967_QC113_220920**	**Field Duplicate**	**EP2212154**	<0.02	<0.05	*1.18*	1.24	1.24	<1	50	<1	48	1.84	1.54	26	8.79	7	10	2	2	19
Site drainage channels	**SW016**	**20 Sep 2022**	**0967_QC213_220920**	**Interlab Duplicate**	**926012**	<0.05	<0.05	*0.86*	0.9	0.92													
Site drainage channels	**SW016**	**20 Sep 2022**	**0967_SW016_220920**	**Normal**	**EP2212154**	<0.02	<0.05	*1.14*	1.20	1.22	<1	50	<1	47	1.96	1.54	26		14	10	2	2	19
Site drainage channels	**SW016**	**11 Sep 2023**	**0967_QC106_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.05	*1.28*	1.34	1.37	<1	78	<1	78	2.40	2.14	24	5.76	8	16	3	2	24
Site drainage channels	**SW016**	**11 Sep 2023**	**0967_QC206_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	*1.48*	1.55	1.59													
Site drainage channels	**SW016**	**11 Sep 2023**	**0967_SW016_230911**	**Normal**	**EP2312522**	<0.02	<0.05	*1.39*	1.47	1.49	<1	74	<1	74	2.34	2.39	24	0.99	9	21	3	2	24
Site drainage channels	**SW018**	**19 Sep 2016**	**PD_SW18**	**Normal**	**EP1608751**	<0.02	<0.05	***3.61***		4.06	<1	49	<1	49			19			13	2	2	24
Site drainage channels	**SW018**	**05 Mar 2019**	**0967_SW018_190305**	**Normal**	**EP1902013**	<0.02	<0.05	***5.83***	6.11	6.25													
Site drainage channels	**SW018**	**13 Jun 2019**	**0967_SW018_190613**	**Normal**	**EP1905805**	<0.02	<0.05	***2.37***	2.64	2.74													
Site drainage channels	**SW018**	**14 Jun 2019**	**0967_SW018_190614**	**Normal**	**EP1905807**	<0.02	<0.05	*1.47*	1.60	1.64													
Site drainage channels	**SW018**	**15 Jun 2019**	**0967_SW018_190615**	**Normal**	**EP1905844**	<0.02	<0.05	***2.62***	2.92	3.03													
Site drainage channels	**SW018**	**16 Jun 2019**	**0967_SW018_190616**	**Normal**	**EP1905847**	<0.02	<0.05	***4.86***	5.12	5.23													
Site drainage channels	**SW018**	**17 Jun 2019**	**0967_SW018_190617**	**Normal**	**EP1905846**	<0.02	<0.05	***2.90***	3.22	3.34													
Site drainage channels	**SW018**	**28 Oct 2019**	**0967_SW018_191028**	**Normal**	**EP1911089**	<0.02	<0.05	***2.27***	2.41	2.47	<1	192	<1	192	8.84	8.46	170	2.22	10	37	9	5	132
Site drainage channels	**SW018**	**12 May 2020**	**0967_SW018_200512**	**Normal**	**EP2004831**	<0.02	<0.05	***8.27***	8.60	8.79	2	172	<1	174	4.50	4.84	28	3.65	11	30	7	6	60
Site drainage channels	**SW018**	**01 Jul 2020**	**0967_SW018_200701**	**Normal**	**EP2006833**	<0.02	<0.05	***6.10***	6.67	6.94	<1	131	<1	131	3.73	3.44	32	4.03	10	31	4	5	33
Site drainage channels	**SW018**	**02 Jul 2020**	**0967_SW018_200702**	**Normal**	**EP2006908**	<0.02	<0.05	***5.92***	6.29	6.58	<1	157	<1	157	4.30	4.18	33	1.33	11	36	6	6	40
Site drainage channels	**SW018**	**03 Jul 2020**	**0967_SW018_200703**	**Normal**	**EP2006949**	<0.02	<0.05	***4.97***	5.43	5.60	<1	139	<1	139	4.39	4.25	47	1.66	14	33	6	6	45
Site drainage channels	**SW018**	**04 Jul 2020**	**0967_SW018_200704**	**Normal**	**EP2006971**	<0.02	<0.05	***7.11***	7.35	7.48	<1	169	<1	169	4.64	4.95	36	3.20	12	40	6	6	53
Site drainage channels	**SW018**	**13 Oct 2020**	**0967_SW018_201013**	**Normal**	**EP2011097**	<0.02	<0.05	***5.49***	5.74	5.87	3	178	<1	181	4.73	5.04	30	3.11	13	37	7	7	56
Site drainage channels	**SW018**	**29 Apr 2021**	**0967_QC108_210429**	**Field Duplicate**	**EP2104727**	<0.02	<0.05	***5.88***	6.08	6.18	<1	187	<1	187	4.82	5.42	28	5.85	14	33	8	6	68
Site drainage channels	**SW018**	**29 Apr 2021**	**0967_QC208_210429**	**Interlab Duplicate**	**792663**	<0.05	<0.05	***5.03***	5.19	5.26	<10	220					47						
Site drainage channels	**SW018**	**29 Apr 2021**	**0967_SW018_210429**	**Normal**	**EP2104727**	<0.02	<0.05	***5.85***	6.03	6.13	<1	181	<1	181	4.70	5.50	29	7.76	13	32	8	6	71
Site drainage channels	**SW018**	**31 May 2021**	**0967_SW018_210531**	**Normal**	**EP2106116**	<0.02	<0.05	***3.17***	3.42	3.54	<1	128	<1	128	3.61	3.70	30	1.21	10	31	4	5	39
Site drainage channels	**SW018**	**01 Jun 2021**	**0967_SW018_210601**	**Normal**	**EP2106134**	<0.02	<0.05	***4.03***	4.20	4.27	<1	147	<1	147	3.91	3.92	27	0.24	10	33	5	5	40
Site drainage channels	**SW018**	**02 Jun 2021**	**0967_SW018_210602**	**Normal**	**EP2106195**	<0.02	<0.05	***4.09***	4.38	4.48	<1	144	<1	144	4.04	4.01	34	0.47	10	32	5	5	43
Site drainage channels	**SW018**	**03 Jun 2021**	**0967_SW018_210603**	**Normal**	**EP2106262**	<0.02	<0.05	***4.79***	4.95	5.04	<1	188	<1	188	4.78	5.40	29	6.05	10	43	7	6	58
Site drainage channels	**SW018**	**04 Jun 2021**	**0967_SW018_210604**	**Normal**	**EP2106323**	<0.02	<0.05	***5.02***	5.20	5.29	<1	189	<1	189	4.86	5.02	31	1.61	10	38	7	6	55
Site drainage channels	**SW018**	**20 Sep 2021**	**0967_SW018_210920**	**Normal**	**EP2111137**	<0.02	<0.05	***4.30***	4.46	4.55	<1	174	<1	174	4.38	4.41	24	0.36	11	38	6	6	43
Site drainage channels	**SW018**	**21 Apr 2022**	**0967_SW018_210422**	**Normal**	**EP2204671**	<0.02	<0.05	*1.16*	1.20	1.20	<1	142	<1	142	8.34	8.53	176	1.11	26	39	10	11	126
Site drainage channels	**SW018**	**21 Jun 2022**	**0967_SW018_220621**	**Normal**	**EP2207730**	<0.02	<0.05	***2.70***	3.13	3.29	<1	119	<1	119	3.54	3.53	30	0.12	15	26	4	8	39
Site drainage channels	**SW018**	**22 Jun 2022**	**0967_SW018_220622**	**Normal**	**EP2207734**	<0.02	<0.05	***2.58***	2.89	3.02	<1	143	<1	143	4.37	4.72	41	3.85	17	36	5	8	53
Site drainage channels	**SW018**	**23 Jun 2022**	**0967_SW018_220623**	**Normal**	**EP2207824**	<0.02	<0.05	***2.88***	3.32	3.46	<1	141	<1	141	4.52	4.89	47	3.93	18	36	6	8	55

					PFAS				Inorganics												
					N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
					µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting					0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water							*0.07*															
PFAS NEMP 2020 Recreational Water							**2**															
Site ID	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																	
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_QC115_220624**	**Field Duplicate**	**EP2207891**	<0.02	<0.05	***3.64***	3.94	4.06	<1	118	<1	118	3.79	4.62	39	9.89	16	36	5	6	52
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_QC215_220624**	**Interlab Duplicate**	**902459**	<0.05	<0.05	***2.23***	2.53	2.66													
Site drainage channels	**SW018**	**24 Jun 2022**	**0967_SW018_220624**	**Normal**	**EP2207891**	<0.02	<0.05	***2.29***	2.60	2.70	<1	132	<1	132	4.04	3.43	38	8.24	16	29	4	5	35
Site drainage channels	**SW018**	**25 Jun 2022**	**0967_SW018_220625**	**Normal**	**EP2207911**	<0.02	<0.05	***2.67***	2.96	3.09	<1	145	<1	145	4.26	4.79	35	5.89	18	38	5	7	53
Site drainage channels	**SW018**	**26 Sep 2022**	**0967_SW018_220926**	**Normal**	**EP2212403**	<0.02	<0.05	***2.14***	2.32	2.39	<1	174	<1	174	6.73	6.28	94	3.47	29	18	4	36	95
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_QC107_230412**	**Field Duplicate**	**EP2304601**	<0.02	<0.05	*1.06*	1.22	1.26													
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_QC207_230412**	**Interlab Duplicate**	**982488**	<0.05	<0.05	*1.19*	1.46	1.54													
Site drainage channels	**SW018**	**12 Apr 2023**	**0967_SW018_230412**	**Normal**	**EP2304601**	<0.02	<0.05	*1.07*	1.22	1.26	<1	147	<1	147	5.03	4.39	50	6.84	33	16	4	17	65
Site drainage channels	**SW018**	**09 Jun 2023**	**0967_SW018_230609**	**Normal**	**EP2307643**	<0.02	<0.05	*1.42*	1.88	2.04	<1	98	<1	98	3.00	2.64	26	6.43	15	17	3	6	32
Site drainage channels	**SW018**	**10 Jun 2023**	**0967_SW018_230610**	**Normal**	**EP2307675**	<0.02	<0.05	*1.46*	1.70	1.79	<1	124	<1	124	4.15	4.17	43	0.24	22	35	4	7	44
Site drainage channels	**SW018**	**11 Jun 2023**	**0967_SW018_230611**	**Normal**	**EP2307678**	<0.02	<0.05	*1.01*	1.14	1.17	<1	79	<1	79	2.44	2.12	21	7.04	13	13	1	5	29
Site drainage channels	**SW018**	**12 Jun 2023**	**0967_SW018_230612**	**Normal**	**EP2307715**	<0.02	<0.05	*1.52*	1.74	1.83	<1	129	<1	129	3.78	3.69	31	1.29	16	22	3	10	48
Site drainage channels	**SW018**	**13 Jun 2023**	**0967_SW018_230613**	**Normal**	**EP2307798**	<0.02	<0.05	*1.73*	1.97	2.07	<1	140	<1	140	4.45	4.92	44	5.02	20	38	6	9	53
Site drainage channels	**SW018**	**25 Sep 2023**	**0967_SW018_230925**	**Normal**	**EP2313262**	<0.02	<0.05	***3.18***	3.28	3.35	7	163	<1	170	4.04	4.03	17	0.13	8	32	5	6	43
Site drainage channels	**SW020**	**19 Sep 2016**	**PD_SW20**	**Normal**	**EP1608751**	<0.02	<0.05	***3.68***		4.26	<1	56	<1	56			25			12	2	2	25
Site drainage channels	**SW020**	**22 Aug 2017**	**PD_SW20**	**Normal**	**EP1709097**	<0.02	<0.05	***3.68***	4.14	4.31	9	118	<1	128			31			30	5	5	34
Site drainage channels	**SW020**	**13 Jun 2019**	**0967_SW020_190613**	**Normal**	**EP1905805**	<0.02	<0.05	***2.01***	2.25	2.36													
Site drainage channels	**SW020**	**14 Jun 2019**	**0967_SW020_190614**	**Normal**	**EP1905807**	<0.02	<0.05	*1.44*	2.15	2.23													
Site drainage channels	**SW020**	**15 Jun 2019**	**0967_SW020_190615**	**Normal**	**EP1905844**	<0.02	<0.05	***2.20***	2.52	2.64													
Site drainage channels	**SW020**	**16 Jun 2019**	**0967_SW020_190616**	**Normal**	**EP1905847**	<0.02	<0.05	***2.49***	2.86	3.01													
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_QC129_190617**	**Field Duplicate**	**EP1905846**	<0.02	<0.05	***2.02***	2.34	2.45													
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_QC229_190617**	**Interlab Duplicate**	**228323**	<0.02	<0.5	*1.4*		1.9													
Site drainage channels	**SW020**	**17 Jun 2019**	**0967_SW020_190617**	**Normal**	**EP1905846**	<0.02	<0.05	*1.82*	2.07	2.18													
Site drainage channels	**SW020**	**28 Oct 2019**	**0967_SW020_191028**	**Normal**	**EP1911089**	<0.02	<0.05	***2.41***	2.62	2.69	11	165	<1	176	9.61	8.82	210	4.25	8	30	10	6	146
Site drainage channels	**SW020**	**12 May 2020**	**0967_SW020_200512**	**Normal**	**EP2004831**	<0.02	<0.05	***2.30***	2.66	2.80	7	88	<1	96	5.47	5.40	114	0.60	16	28	6	8	76
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_QC103_200701**	**Field Duplicate**	**EP2006833**	<0.02	<0.05	***2.32***	2.99	3.15	<1	88	<1	88	3.64	3.56	55	1.10	16	24	5	5	42
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_QC203_01072020**	**Interlab Duplicate**	**729577**	<0.05	<0.05	***2.13***	2.63	2.78	<10	100					54						
Site drainage channels	**SW020**	**01 Jul 2020**	**0967_SW020_200701**	**Normal**	**EP2006833**	<0.02	<0.05	***2.40***	3.09	3.25	<1	89	<1	89	3.66	3.56	55	1.37	16	24	5	5	42
Site drainage channels	**SW020**	**02 Jul 2020**	**0967_SW020_200702**	**Normal**	**EP2006908**	<0.02	<0.05	***2.43***	2.86	3.00	<1	95	<1	95	3.33	3.14	42	2.90	12	23	4	4	36
Site drainage channels	**SW020**	**03 Jul 2020**	**0967_SW020_200703**	**Normal**	**EP2006949**	<0.02	<0.05	*1.82*	2.21	2.32	<1	112	<1	112	3.78	3.68	45	1.36	13	28	5	5	40
Site drainage channels	**SW020**	**04 Jul 2020**	**0967_SW020_200704**	**Normal**	**EP2006971**	<0.02	<0.05	***2.22***	2.65	2.78	<1	122	<1	122	4.11	4.41	49	3.52	14	32	6	4	51
Site drainage channels	**SW020**	**13 Oct 2020**	**0967_SW020_201013**	**Normal**	**EP2011097**	<0.02	<0.05	***2.33***	2.71	2.82	6	136	<1	142	5.90	5.77	102	1.12	9	30	8	7	79
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_QC113_210420**	**Field Duplicate**	**EP2104297**	<0.02	<0.05	*1.77*	3.84	3.97	11	121	<1	132	8.36	7.44	188	5.81	20	24	9	11	120
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_QC213_210420**	**Interlab Duplicate**	**789529**	<0.05	<0.05	*1.92*	2.38	2.51	<10	130	<20	140			190						
Site drainage channels	**SW020**	**20 Apr 2021**	**0967_SW020_210420**	**Normal**	**EP2104297**	<0.02	<0.05	*1.96*	2.75	2.88	12	119	<1	131	8.42	7.22	191	7.68	20	23	8	11	118
Site drainage channels	**SW020**	**31 May 2021**	**0967_SW020_210531**	**Normal**	**EP2106116**	<0.02	<0.05	*1.93*	2.21	2.32	<1	76	<1	76	2.74	2.83	36	1.62	10	21	3	4	33
Site drainage channels	**SW020**	**01 Jun 2021**	**0967_SW020_210601**	**Normal**	**EP2106134**	<0.02	<0.05	*1.92*	2.20	2.34	<1	95	<1	95	3.35	3.46	42	1.52	13	27	4	5	38
Site drainage channels	**SW020**	**02 Jun 2021**	**0967_SW020_210602**	**Normal**	**EP2106195**	<0.02	<0.05	***2.08***	2.34	2.46	<1	105	<1	105	3.42	3.34	38	1.20	12	26	4	4	37
Site drainage channels	**SW020**	**03 Jun 2021**	**0967_SW020_210603**	**Normal**	**EP2106262**	<0.02	<0.05	*1.93*	2.18	2.29	<1	110	<1	110	3.67	3.86	44	2.59	11	30	5	5	42
Site drainage channels	**SW020**	**04 Jun 2021**	**0967_SW020_210604**	**Normal**	**EP2106323**	<0.02	<0.05	*1.94*	2.16	2.27	<1	118	<1	118	4.09	4.30	54	2.57	10	31	5	5	51
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_QC100_210809**	**Field Duplicate**	**EP2109323**	<0.02	<0.05	*1.92*	2.19	2.26													
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_QC200_210809**	**Interlab Duplicate**	**267025**	<0.02	<0.5	*1.8*		2.2													
Site drainage channels	**SW020**	**09 Aug 2021**	**0967_SW020_210809**	**Normal**	**EP2109323**	<0.02	<0.05	***2.12***	2.42	2.51													
Site drainage channels	**SW020**	**13 Aug 2021**	**0967_SW020_210813**	**Normal**	**EP2109406**	<0.02	<0.05	***2.90***	3.25	3.37													
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_QC100_210824**	**Field Duplicate**	**EP2109842**	<0.02	<0.05	*1.96*	2.21	2.31													
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_QC200_210824**	**Interlab Duplicate**	**267713**	<0.02	<0.5	***2.2***		2.6													
Site drainage channels	**SW020**	**24 Aug 2021**	**0967_SW020_210824**	**Normal**	**EP2109842**	<0.02	<0.05	***2.23***	2.52	2.63													
Site drainage channels	**SW020**	**20 Sep 2021**	**0967_SW020_210920**	**Normal**	**EP2111137**	<0.02	<0.05	***2.74***	3.01	3.11	8	105	<1	113	3.95	4.13	51	2.27	12	28	5	4	51
Site drainage channels	**SW020**	**21 Apr 2022**	**0967_SW020_220422**	**Normal**	**EP2204671**	<0.02	<0.05	***3.64***	3.80	3.89	<1	145	<1	145	7.78	8.16	156	2.44	23	45	9	12	112
Site drainage channels	**SW020**	**21 Jun 2022**	**0967_SW020_220621**	**Normal**	**EP2207730**	<0.02	<0.05	*1.27*	1.47	1.51	110	16	<1	126	3.49	2.98	22	7.86	17	4	<1	17	54
Site drainage channels	**SW020**	**22 Jun 2022**	**0967_SW020_220622**	**Normal**	**EP2207734**	<0.02	<0.05	*1.56*	1.79	1.89	97	10	<1	107	3.59	3.38	36	3.06	21	2	<1	21	63
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_QC110_220623**	**Field Duplicate**	**EP2207824**	<0.02	<0.05	*1.82*	2.07	2.16	<1	137	<1	137	4.23	4.56	41	3.75	16	34	5	9	51
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_QC210_220623**	**Interlab Duplicate**	**902466**	<0.05	<0.05	*1.08*	1.3	1.39													
Site drainage channels	**SW020**	**23 Jun 2022**	**0967_SW020_220623**	**Normal**	**EP2207824**	<0.02	<0.05	*1.89*	2.15	2.24	<1	137	<1	137	4.15	4.61	39	5.22	15	35	5	9	51
Site drainage channels	**SW020**	**24 Jun 2022**	**0967_SW020_220624**	**Normal**	**EP2207891**	<0.02	<0.05	***2.37***	2.60	2.70	<1	123	<1	123	3.87	4.44	39	6.82	15	34	5	6	50
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_QC118_220625**	**Field Duplicate**	**EP2207911**	<0.02	<0.05	***2.19***	2.49	2.60	<1	140	<1	140	4.14	4.39	36	2.82	16	33	5	6	50
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_QC218_220625**	**Interlab Duplicate**	**902463**	<0.05	<0.05	*1.7*	1.91	2.01													
Site drainage channels	**SW020**	**25 Jun 2022**	**0967_SW020_220625**	**Normal**	**EP2207911**	<0.02	<0.05	***2.29***	2.59	2.71	<1	140	<1	140	4.17	4.44	36	3.14	17	34	5	6	50
Site drainage channels	**SW020**	**22 Sep 2022**	**0967_SW020_220922**	**Normal**	**EP2212311**	<0.02	<0.05	*1.69*	1.86	1.91	<1	118	<1	118	4.02	3.93	44	1.02	20	16	3	16	57
Site drainage channels	**SW020**	**12 Apr 2023**	**0967_SW020_230412**	**Normal**	**EP2304601**	<0.02	<0.05	*1.23*	1.39	1.42	<1	140	<1	140	5.06	4.36	56	7.41	33	15	4	18	65
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_QC101_230609**	**Field Duplicate**	**EP2307643**	<0.02	<0.05	*1.00*	1.12	1.14	<1	92	<1	92	2.84	2.50	26	6.33	13	16	3	6	30
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_QC201_230609**	**Interlab Duplicate**	**999535**	<0.05	<0.05	*1.05*	1.16	1.21													
Site drainage channels	**SW020**	**09 Jun 2023**	**0967_SW020_230609**	**Normal**	**EP2307643**	<0.02	<0.05	*0.95*	1.06	1.10	<1	92	<1	92	2.80	2.50	26	5.60	11	16	3	6	30
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_QC105_230610**	**Field Duplicate**	**EP2307675**	<0.02	<0.05	*1.06*	1.22	1.28	<1	118	<1	118	3.69	3.78	34	1.23	18	32	4	8	38
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_QC205_230610**	**Interlab Duplicate**	**999535**	<0.05	<0.05	*1.36*	1.49	1.56													
Site drainage channels	**SW020**	**10 Jun 2023**	**0967_SW020_230610**	**Normal**	**EP2307675**	<0.02	<0.05	*1.07*	1.23	1.28	<1	118	<1	118	3.69	3.84	34	1.97	18	34	4	8	37
Site drainage channels	**SW020**	**11 Jun 2023**	**0967_SW020_230611**	**Normal**	**EP2307678**	<0.02	<0.05	*0.85*	0.97	1.00	<1	69	<1	69	2.10	1.76	16	8.84	13	11	1	5	23
Site drainage channels	**SW020**	**12 Jun 2023**	**0967_QC113_230612**	**Field Duplicate**	**EP2307715**	<0.02	<0.05	*1.00*	1.14	1.18	<1	122	<1	122	3.54	3.86	28	4.40	15	32	5	8	38
Site drainage channels	**SW020**	**12 Jun 2023**	**0967_QC213_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	*1.25*	1.37	1.44													
Site drainage channels	**SW020**	**12 Jun 2023**	**0967_SW020_230612**	**Normal**	**EP2307715**	<0.02	<0.05	*1.09*	1.24	1.30	<1	119	<1	119	3.46	3.96	28	6.82	14	34	5	8	38
Site drainage channels	**SW020**	**13 Jun 2023**	**0967_QC121_230613**	**Field Duplicate**	**EP2307798**	<0.02	<0.05	*1.30*	1.47	1.55	<1	131	<1	131	3.96	4.38	35	5.10	17	35	6	9	44
Site drainage channels	**SW020**	**13 Jun 2023**	**0967_QC221_230613**	**Interlab Duplicate**	**999535**	<0.05	<0.05	*1.52*	1.67	1.77													
Site drainage channels	**SW020**	**13 Jun 2023**	**0967_SW020_230613**	**Normal**	**EP2307798**	<0.02	<0.05	*1.34*	1.51	1.59	<1	130	<1	130	3.94	4.46	35	6.20	17	36	6	10	44
Site drainage channels	**SW020**	**11 Sep 2023**	**0967_QC102_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.05	*1.46*	1.61	1.68	<1	151	<1	151	4.18	4.22	34	0.49	10	27	5	8	52
Site drainage channels	**SW020**	**11 Sep 2023**	**0967_QC202_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	*0.65*	0.69	0.69													
Site drainage channels	**SW020**	**11 Sep 2023**	**0967_SW020_230911**	**Normal**	**EP2312522**	<0.02	<0.05	*1.43*	1.57	1.64	<1	151	<1	151	4.18	4.61	34	4.81	10	33	6	8	52

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																*0.56*											
PFAS NEMP 2020 Freshwater 95%										0.13						220											
PFAS NEMP 2020 Recreational Water																**10**											
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																							
Ellen Brook	**SW021**	**21 Sep 2016**	**RE_SW01**	**Normal**	**ES1622106**	0.0006	<0.0005	0.004	<0.0005	0.0013	<0.0005	<0.002	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW021**	**24 Aug 2017**	**RE_SW01**	**Normal**	**EP1709164**	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.01	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW021**	**08 Mar 2019**	**0967_SW021_190308**	**Normal**	**EP1902156**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**22 Oct 2019**	**0967_SW021_191022**	**Normal**	**EP1910841**	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**06 May 2020**	**0967_QC102_200506**	**Field Duplicate**	**EP2004584**	0.02	<0.02	0.08	<0.02	0.04	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**06 May 2020**	**0967_QC202_200506**	**Interlab Duplicate**	**718239**	0.03	0.02	0.06	<0.01	0.03	<0.01	<0.05	0.06	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW021**	**06 May 2020**	**0967_SW021_200506**	**Normal**	**EP2004584**	0.02	<0.02	0.07	<0.02	0.03	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**12 Oct 2020**	**0967_SW021_201012**	**Normal**	**EP2010999**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**09 Aug 2021**	**0967_SW021_210809**	**Normal**	**EP2109323**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**25 Aug 2021**	**0967_SW021_210825**	**Normal**	**EP2109842**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_QC102_210906**	**Field Duplicate**	**EP2110383**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_QC202_210906**	**Interlab Duplicate**	**822875**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_SW021_210906**	**Normal**	**EP2110383**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_QC106_220419**	**Field Duplicate**	**EP2204504**	0.02	<0.02	0.07	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_QC206_220419**	**Interlab Duplicate**	**882564**	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_SW021_220419**	**Normal**	**EP2204504**	0.02	<0.02	0.07	<0.02	0.05	<0.02	<0.1	0.02	0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**19 Sep 2022**	**0967_SW021_220919**	**Normal**	**EP2212055**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**12 Apr 2023**	**0967_SW021_230412**	**Normal**	**EP2304604**	0.05	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW021**	**14 Sep 2023**	**0967_SW021_230914**	**Normal**	**EP2312711**	<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**20 Sep 2016**	**RE_SW02**	**Normal**	**ES1622106**	0.0388	0.0338	0.503	0.0145	0.844	<0.0005	<0.002	0.0051	0.0244	0.0033	0.0117	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW022**	**20 Sep 2016**	**SW_FD03**	**Field Duplicate**	**EP1608799**	0.06		0.62		0.88		<0.1	0.04	0.09	<0.02	0.02							<0.05	<0.05	<0.05	<0.05		
Ellen Brook	**SW022**	**20 Sep 2016**	**SW_FS03**	**Interlab Duplicate**	**186091**			0.23		0.31						0.02								<0.01	<0.01			
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_QC111_190613**	**Field Duplicate**	**EP1905805**	<0.02	0.02	0.20	<0.02	0.51	<0.02	<0.1	0.12	0.11	0.03	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.32	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_QC211_190613**	**Interlab Duplicate**	**228248**	0.03	0.03	0.27	<0.01	0.45	<0.02	0.03	0.20	0.13	0.03	0.02	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.32	<0.01	<0.01	<0.1	<0.05
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_SW022_190613**	**Normal**	**EP1905805**	0.02	0.03	0.23	<0.02	0.68	<0.02	<0.1	0.16	0.12	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.26	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**14 Jun 2019**	**0967_SW022_190614**	**Normal**	**EP1905807**	<0.02	0.03	0.29	<0.02	0.52	<0.02	<0.1	0.20	0.22	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.49	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**15 Jun 2019**	**0967_SW022_190615**	**Normal**	**EP1905844**	0.02	0.02	0.24	<0.02	0.94	<0.02	<0.1	0.19	0.13	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.50	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**16 Jun 2019**	**0967_SW022_190616**	**Normal**	**EP1905847**	0.04	0.04	0.39	0.02	1.19	<0.02	<0.1	0.20	0.14	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.45	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**17 Jun 2019**	**0967_SW022_190617**	**Normal**	**EP1905846**	0.04	0.05	0.35	0.02	0.92	<0.02	<0.1	0.25	0.18	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.49	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**30 Oct 2019**	**0967_SW022_191030**	**Normal**	**EP1911234**	0.26	0.26	1.89	0.05	1.27	<0.02	0.3	1.03	1.00	0.18	0.15	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.83	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**13 May 2020**	**0967_QC103_200513**	**Field Duplicate**	**EP2004874**	0.04	0.05	0.38	<0.02	1.39	<0.02	<0.1	0.35	0.28	0.08	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.28	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**13 May 2020**	**0967_QC203_200513**	**Interlab Duplicate**	**719471**	0.03	0.04	0.29	0.02	1.2	<0.01	0.07	0.24	0.15	0.05	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.78	0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW022**	**13 May 2020**	**0967_SW022_200513**	**Normal**	**EP2004874**	0.04	0.05	0.40	0.02	1.30	<0.02	<0.1	0.35	0.28	0.08	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.11	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**30 Jun 2020**	**0967_SW022_200630**	**Normal**	**EP2006825**	0.04	0.04	0.32	<0.02	0.63	<0.02	<0.1	0.07	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**01 Jul 2020**	**0967_SW022_200701**	**Normal**	**EP2006833**	0.04	0.04	0.29	<0.02	0.54	<0.02	<0.1	0.07	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.10	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**02 Jul 2020**	**0967_SW022_200702**	**Normal**	**EP2006908**	0.04	0.04	0.31	<0.02	0.55	<0.02	<0.1	0.06	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.07	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**03 Jul 2020**	**0967_SW022_200703**	**Normal**	**EP2006949**	0.05	0.05	0.38	<0.02	0.54	<0.02	<0.1	0.11	0.12	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.11	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**04 Jul 2020**	**0967_SW022_200704**	**Normal**	**EP2006971**	0.05	0.08	0.97	0.06	2.18	<0.02	<0.1	0.02	0.09	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_QC104_201012**	**Field Duplicate**	**EP2011011**	0.11	0.15	1.14	0.05	1.93	<0.02	<0.1	0.35	0.44	0.07	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.42	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_QC204_201012**	**Interlab Duplicate**	**750345**	0.10	0.10	1.0	0.06	1.5	<0.01	0.12	0.30	0.34	0.07	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_SW022_201012**	**Normal**	**EP2011011**	0.12	0.16	1.27	0.05	2.04	<0.02	<0.1	0.34	0.48	0.08	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.43	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**19 Apr 2021**	**0967_QC105_210419**	**Field Duplicate**	**EP2104215**	0.10	0.10	0.90	0.04	1.16	<0.02	0.2	0.81	0.60	0.15	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.99	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**19 Apr 2021**	**0967_SW022_210419**	**Normal**	**EP2104215**	0.10	0.11	0.99	0.04	1.32	<0.02	0.2	0.88	0.65	0.16	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.27	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**31 May 2021**	**0967_SW022_210531**	**Normal**	**EP2106116**	0.02	0.02	0.19	<0.02	0.45	<0.02	<0.1	0.04	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.10	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**01 Jun 2021**	**0967_SW022_210601**	**Normal**	**EP2106134**	0.03	0.02	0.20	<0.02	0.37	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.11	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**02 Jun 2021**	**0967_SW022_210602**	**Normal**	**EP2106195**	0.03	0.03	0.23	<0.02	0.42	<0.02	<0.1	0.05	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.08	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**03 Jun 2021**	**0967_SW022_210603**	**Normal**	**EP2106262**	<0.02	<0.02	0.13	<0.02	0.28	<0.02	<0.1	0.03	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**04 Jun 2021**	**0967_SW022_210604**	**Normal**	**EP2106323**	<0.02	<0.02	0.04	<0.02	0.13	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**09 Aug 2021**	**0967_SW022_210809**	**Normal**	**EP2109323**	<0.02	0.02	0.19	<0.02	0.31	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**24 Aug 2021**	**0967_SW022_210824**	**Normal**	**EP2109842**	0.03	0.04	0.33	<0.02	0.42	<0.02	<0.1	0.05	0.10	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**06 Sep 2021**	**0967_SW022_210906**	**Normal**	**EP2110383**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_QC111_220420**	**Field Duplicate**	**EP2204599**	0.20	0.18	1.25	0.04	0.74	<0.02	0.4	2.30	2.22	0.46	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	14.1	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_QC211_220420**	**Interlab Duplicate**	**882820**	0.23	0.30	1.2	0.04	1.2	<0.01	0.51	1.8	2.1	0.40	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	12	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_SW022_220420**	**Normal**	**EP2204599**	0.19	0.20	1.22	0.04	0.79	<0.02	0.4	2.28	2.20	0.47	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	15.5	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**21 Jun 2022**	**0967_SW022_220621**	**Normal**	**EP2207730**	0.04	0.04	0.32	<0.02	0.39	<0.02	<0.1	0.14	0.18	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.37	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**22 Jun 2022**	**0967_SW022_220622**	**Normal**	**EP2207734**	0.06	0.05	0.38	0.02	0.60	<0.02	<0.1	0.22	0.23	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.46	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**23 Jun 2022**	**0967_SW022_220623**	**Normal**	**EP2207824**	0.07	0.05	0.43	<0.02	0.55	<0.02	<0.1	0.28	0.25	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_QC117_220624**	**Field Duplicate**	**EP2207891**	0.04	0.04	0.33	<0.02	1.01	<0.02	<0.1	0.18	0.18	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.49	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_QC217_220624**	**Interlab Duplicate**	**902459**	0.04	0.03	0.28	0.01	0.54	<0.01	0.05	0.19	0.15	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.48	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_SW022_220624**	**Normal**	**EP2207891**	0.03	0.04	0.31	<0.02	1.06	<0.02	<0.1	0.19	0.19	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.57	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**25 Jun 2022**	**0967_SW022_220625**	**Normal**	**EP2207911**	0.04	0.04	0.33	<0.02	0.47	<0.02	<0.1	0.16	0.15	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.41	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**22 Sep 2022**	**0967_SW022_220922**	**Normal**	**EP2212311**	0.02	0.02	0.23	<0.02	0.56	<0.02	<0.1	0.14	0.30	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	5.10	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**12 Apr 2023**	**0967_SW022_230412**	**Normal**	**EP2304597**	0.15	0.12	0.84	0.03	0.81	<0.02	0.4	2.05	1.34	0.40	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	1.35	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**09 Jun 2023**	**0967_SW022_230609**	**Normal**	**EP2307643**	0.02	0.02	0.18	<0.02	0.43	<0.02	<0.1	0.16	0.14	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.32	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**10 Jun 2023**	**0967_SW022_230610**	**Normal**	**EP2307675**	0.03	0.03	0.26	<0.02	0.40	<0.02	<0.1	0.17	0.16	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.14	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**11 Jun 2023**	**0967_SW022_230611**	**Normal**	**EP2307678**	0.04	0.04	0.34	<0.02	0.62	<0.02	<0.1	0.23	0.23	0.06	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.60	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_QC116_230612**	**Field Duplicate**	**EP2307715**	0.03	0.03	0.25	<0.02	0.46	<0.02	<0.1	0.13	0.13	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.23	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_QC216_230612**	**Interlab Duplicate**	**999535**	0.03	0.02	0.23	0.01	0.58	<0.01	0.05	0.12	0.11	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_SW022_230612**	**Normal**	**EP2307715**	0.04	0.03	0.27	<0.02	0.46	<0.02	<0.1	0.14	0.14	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.22	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**13 Jun 2023**	**0967_SW022_230613**	**Normal**	**EP2307798**	0.04	0.04	0.29	<0.02	0.42	<0.02	<0.1	0.16	0.16	0.04	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.20	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW022**	**19 Sep 2023**	**0967_SW022_230919**	**Normal**	**EP2312965**	0.06	0.05	0.41	<0.02	0.61	<0.02	<0.1	0.17	0.19	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.30	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW024**	**20 Sep 2016**	**RE_SW04**	**Normal**	**ES1622106**	0.0019	0.0013	0.0174	0.0006	0.0188	<0.0005	<0.002	<0.0005	0.0011	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW024**	**19 Nov 2019**	**0967_SW024_191119**	**Normal**	**EP1912126**	<0.02	<0.02	0.08	<0.02	0.12	<0.02	<0.1	0.07	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW024**	**14 Oct 2020**	**0967_SW024_201014**	**Normal**	**EP2011183**	0.42	0.25	1.82	0.04	0.26	<0.02	<0.1	0.09	0.35	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW024**	**07 Sep 2021**	**0967_SW024_210907**	**Normal**	**EP2110445**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW024**	**23 Sep 2022**	**0967_SW024_220923**	**Normal**	**EP2212363**	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW024**	**15 Sep 2023**	**0967_SW024_230915**	**Normal**	**EP2312794**	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting							0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																	*0.56*											
PFAS NEMP 2020 Freshwater 95%											0.13						220											
PFAS NEMP 2020 Recreational Water																	**10**											
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																							
Ellen Brook	**SW025**	**10 Jun 2019**	**0967_QC230_190617**	**Interlab Duplicate**	**228323**	<0.01	<0.01	0.05	<0.01	0.10	<0.02	<0.02	0.03	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.03	<0.01	<0.01	<0.1	<0.05
Ellen Brook	**SW025**	**17 Jun 2019**	**0967_SW025_190617**	**Normal**	**EP1905846**	<0.02	<0.02	0.04	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_QC102_191025**	**Field Duplicate**	**EP1911009**	0.19	0.22	3.60	0.14	5.08	<0.02	<0.1	0.08	0.38	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_QC202_191025**	**Interlab Duplicate**	**685044**	0.11	0.24	2.7	0.11	5.1	<0.01	<0.05	0.05	0.28	0.04	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_SW025_191025**	**Normal**	**EP1911009**	0.18	0.22	3.52	0.14	5.02	<0.02	<0.1	0.09	0.38	0.04	0.09	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**30 Jun 2020**	**0967_SW025_200630**	**Normal**	**EP2006825**	0.13	0.12	1.34	0.05	2.33	<0.02	<0.1	0.05	0.28	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**01 Jul 2020**	**0967_SW025_200701**	**Normal**	**EP2006833**	0.03	0.04	0.43	0.03	1.25	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**02 Jul 2020**	**0967_SW025_200702**	**Normal**	**EP2006908**	0.09	0.09	0.96	0.04	1.67	<0.02	<0.1	<0.02	0.18	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**03 Jul 2020**	**0967_SW025_200703**	**Normal**	**EP2006949**	0.07	0.08	1.02	0.05	1.87	<0.02	<0.1	0.02	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_QC101_200704**	**Field Duplicate**	**EP2006971**	0.05	0.06	0.87	0.04	1.92	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_QC201_200704**	**Interlab Duplicate**	**730326**	0.04	0.04	0.67	0.03	1.9	<0.01	<0.05	0.01	0.06	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_SW025_200704**	**Normal**	**EP2006971**	0.06	0.06	0.44	<0.02	0.62	<0.02	<0.1	0.14	0.16	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	0.17	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**12 Oct 2020**	**0967_SW025_201012**	**Normal**	**EP2011011**	0.05	0.10	1.48	0.08	0.49	<0.02	<0.1	0.03	0.15	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**31 May 2021**	**0967_SW025_210531**	**Normal**	**EP2106116**	0.05	0.05	0.77	0.04	2.14	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**01 Jun 2021**	**0967_SW025_210601**	**Normal**	**EP2106134**	0.04	0.06	0.85	0.04	2.08	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**02 Jun 2021**	**0967_SW025_210602**	**Normal**	**EP2106195**	0.05	0.06	0.98	0.05	2.23	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**03 Jun 2021**	**0967_SW025_210603**	**Normal**	**EP2106262**	0.04	0.07	1.06	0.05	2.66	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**04 Jun 2021**	**0967_SW025_210604**	**Normal**	**EP2106323**	0.04	0.07	1.11	0.06	2.78	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**09 Sep 2021**	**0967_SW025_210909**	**Normal**	**EP2110628**	0.07	0.11	1.38	0.08	3.51	<0.02	<0.1	0.03	0.14	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**21 Jun 2022**	**0967_SW025_220621**	**Normal**	**EP2207730**	0.07	0.07	0.89	0.04	1.84	<0.02	<0.1	0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**22 Jun 2022**	**0967_SW025_220622**	**Normal**	**EP2207734**	0.05	0.06	0.87	0.05	2.92	<0.02	<0.1	0.02	0.09	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_QC112_220623**	**Field Duplicate**	**EP2207824**	0.08	0.07	1.08	0.06	2.44	<0.02	<0.1	0.02	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_QC212_220623**	**Interlab Duplicate**	**902466**	0.06	0.07	1.0	0.05	1.9	<0.01	<0.05	0.02	0.11	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_SW025_220623**	**Normal**	**EP2207824**	0.08	0.07	1.04	0.06	2.43	<0.02	<0.1	0.02	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**24 Jun 2022**	**0967_SW025_220624**	**Normal**	**EP2207891**	0.07	0.09	1.24	0.06	4.54	<0.02	<0.1	0.03	0.15	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**25 Jun 2022**	**0967_SW025_220625**	**Normal**	**EP2207911**	0.05	0.07	1.00	0.04	2.55	<0.02	<0.1	<0.02	0.09	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**20 Sep 2022**	**0967_SW025_220920**	**Normal**	**EP2212154**	0.04	0.06	1.11	0.06	3.08	<0.02	<0.1	<0.02	0.09	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**09 Jun 2023**	**0967_SW025_230609**	**Normal**	**EP2307643**	0.04	0.04	0.54	0.03	1.65	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**10 Jun 2023**	**0967_SW025_230610**	**Normal**	**EP2307675**	0.04	0.05	0.72	0.04	2.87	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**11 Jun 2023**	**0967_SW025_230611**	**Normal**	**EP2307678**	0.04	0.03	0.50	0.03	1.40	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**12 Jun 2023**	**0967_SW025_230612**	**Normal**	**EP2307715**	0.04	0.06	0.69	0.03	2.15	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**13 Jun 2023**	**0967_SW025_230613**	**Normal**	**EP2307798**	0.04	0.06	0.79	0.04	2.19	<0.02	<0.1	<0.02	0.06	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW025**	**13 Sep 2023**	**0967_SW025_230913**	**Normal**	**EP2312634**	<0.02	<0.02	0.20	<0.02	0.86	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW026**	**20 Sep 2016**	**RE_SW06**	**Normal**	**ES1622106**	0.0019	0.0016	0.018	0.0006	0.0197	<0.0005	<0.002	<0.0005	0.001	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW026**	**23 Aug 2017**	**RE_SW06**	**Normal**	**EP1709134**	0.002	<0.002	0.017	<0.002	0.017	<0.002	<0.01	<0.002	0.009	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW026**	**07 Nov 2019**	**0967_SW026_191107**	**Normal**	**EP1911618**	<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW026**	**22 Oct 2020**	**0967_SW026_201022**	**Normal**	**EP2011560**	<0.02	<0.02	0.04	<0.02	0.07	<0.02	<0.1	0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW026**	**07 Sep 2021**	**0967_SW026_210907**	**Normal**	**EP2110445**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW026**	**23 Sep 2022**	**0967_SW026_220923**	**Normal**	**EP2212363**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW026**	**14 Sep 2023**	**0967_SW026_230914**	**Normal**	**EP2312711**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**20 Sep 2016**	**RE_SW08**	**Normal**	**ES1622106**	0.0261	0.0203	0.292	0.0124	0.73	<0.0005	<0.002	0.0054	0.0214	0.0021	0.0072	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW028**	**13 Jun 2019**	**0967_SW028_190613**	**Normal**	**EP1905805**	<0.02	<0.02	0.04	<0.02	0.14	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_QC118_190614**	**Field Duplicate**	**EP1905807**	<0.02	<0.02	0.03	<0.02	0.10	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_QC218_190614**	**Interlab Duplicate**	**228247**	<0.01	<0.01	0.04	<0.01	0.08	<0.02	<0.02	0.03	0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	0.01	<0.01	<0.01	<0.1	<0.05
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_SW028_190614**	**Normal**	**EP1905807**	<0.02	<0.02	0.03	<0.02	0.08	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**15 Jun 2019**	**0967_SW028_190615**	**Normal**	**EP1905844**	<0.02	<0.02	0.12	<0.02	0.29	<0.02	<0.1	0.05	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**16 Jun 2019**	**0967_SW028_190616**	**Normal**	**EP1905847**	<0.02	<0.02	0.04	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**17 Jun 2019**	**0967_SW028_190617**	**Normal**	**EP1905846**	<0.02	<0.02	0.05	<0.02	0.14	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**30 Jun 2020**	**0967_SW028_200630**	**Normal**	**EP2006825**	<0.02	<0.02	0.15	<0.02	0.34	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**02 Jul 2020**	**0967_SW028_200702**	**Normal**	**EP2006908**	<0.02	<0.02	0.16	<0.02	0.32	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**03 Jul 2020**	**0967_SW028_200703**	**Normal**	**EP2006949**	0.02	<0.02	0.13	<0.02	0.17	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**04 Jul 2020**	**0967_SW028_200704**	**Normal**	**EP2006971**	0.02	<0.02	0.14	<0.02	0.19	<0.02	<0.1	0.06	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**09 Sep 2021**	**0967_SW028_210909**	**Normal**	**EP2110595**	0.03	0.03	0.32	<0.02	0.72	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**21 Jun 2022**	**0967_SW028_220621**	**Normal**	**EP2207730**	<0.02	<0.02	0.14	0.04	0.26	<0.02	0.1	0.08	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**22 Jun 2022**	**0967_SW028_220622**	**Normal**	**EP2207734**	0.02	<0.02	0.17	<0.02	0.25	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**23 Jun 2022**	**0967_SW028_220623**	**Normal**	**EP2207824**	0.03	0.02	0.18	<0.02	0.29	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**24 Jun 2022**	**0967_SW028_220624**	**Normal**	**EP2207891**	<0.02	0.02	0.20	<0.02	0.45	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**25 Jun 2022**	**0967_SW028_220625**	**Normal**	**EP2207911**	0.03	<0.02	0.17	0.08	0.27	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**20 Sep 2022**	**0967_SW028_220920**	**Normal**	**EP2212154**	<0.02	0.02	0.30	<0.02	0.61	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**09 Jun 2023**	**0967_SW028_230609**	**Normal**	**EP2307643**	0.03	<0.02	0.17	<0.02	0.22	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**11 Jun 2023**	**0967_SW028_230611**	**Normal**	**EP2307678**	0.02	<0.02	0.21	<0.02	0.48	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**12 Jun 2023**	**0967_SW028_230612**	**Normal**	**EP2307715**	0.03	0.03	0.18	<0.02	0.22	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**13 Jun 2023**	**0967_SW028_230613**	**Normal**	**EP2307798**	0.03	0.02	0.18	<0.02	0.20	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW028**	**19 Sep 2023**	**0967_SW028_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.10	<0.02	0.09	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW029**	**20 Sep 2016**	**RE_SW09**	**Normal**	**ES1622106**	0.0227	0.0193	0.223	0.0064	0.156	<0.0005	<0.002	0.0014	0.011	0.0011	0.0019	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW029**	**23 Aug 2017**	**RE_SW09**	**Normal**	**EP1709134**	0.003	0.002	0.02	<0.002	0.01	<0.002	<0.01	<0.002	0.008	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW029**	**30 Oct 2019**	**0967_SW029_191030**	**Normal**	**EP1911186**	0.05	0.05	0.44	<0.05	0.30	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ellen Brook	**SW029**	**09 Sep 2021**	**0967_SW029_210909**	**Normal**	**EP2110595**	0.04	0.03	0.22	<0.02	0.22	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW029**	**20 Sep 2022**	**0967_SW029_220920**	**Normal**	**EP2212154**	<0.02	0.02	0.26	<0.02	0.38	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW029**	**19 Sep 2023**	**0967_SW029_230919**	**Normal**	**EP2312965**	<0.02	<0.02	0.13	<0.02	0.13	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW032**	**21 Sep 2016**	**RK_SW12**	**Normal**	**ES1622106**	0.0127	0.0105	0.149	0.0072	0.356	<0.0005	<0.002	0.0029	0.0092	0.0019	0.0038	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ki-it Monger Brook	**SW032**	**22 Aug 2017**	**RK_SW12**	**Normal**	**EP1709097**	0.007	0.007	0.073	0.003	0.129	<0.002	<0.01	0.013	0.018	0.004	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ki-it Monger Brook	**SW032**	**13 Jun 2019**	**0967_SW032_190613**	**Normal**	**EP1905805**	0.04	0.05	0.37	0.02	1.07	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW032**	**14 Jun 2019**	**0967_QC117_190614**	**Field Duplicate**	**EP1905807**	<0.02	0.05	0.42	0.02	0.92	<0.02	<0.1	0.03	0.15	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																*0.56*												
PFAS NEMP 2020 Freshwater 95%										0.13						220												
PFAS NEMP 2020 Recreational Water																**10**												
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																							
Ki-it Monger Brook	**SW032**	**12 Jun 2023**	**0967_SW032_230612**	**Normal**	**EP2307715**	0.03	0.02	0.23	<0.02	0.43	<0.02	<0.1	<0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW032**	**13 Jun 2023**	**0967_SW032_230613**	**Normal**	**EP2307798**	0.04	0.04	0.30	<0.02	0.64	<0.02	<0.1	0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_QC103_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.02	0.16	<0.02	0.45	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_QC203_230911**	**Interlab Duplicate**	**1026632**	0.01	0.01	0.16	0.01	0.61	<0.01	<0.05	0.02	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_SW032_230911**	**Normal**	**EP2312522**	<0.02	<0.02	0.17	<0.02	0.49	<0.02	<0.1	<0.02	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**21 Sep 2016**	**RK_SW14**	**Normal**	**ES1622106**	0.439	0.289	2.91	0.106	8.35	0.0193	<0.002	0.0502	0.595	0.0131	0.0642	0.0011	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	0.0108	<0.001
Ki-it Monger Brook	**SW034**	**13 Jun 2019**	**0967_SW034_190613**	**Normal**	**EP1905805**	0.03	0.03	0.30	0.02	0.82	<0.02	<0.1	0.03	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**14 Jun 2019**	**0967_SW034_190614**	**Normal**	**EP1905807**	<0.02	0.05	0.37	0.02	0.88	<0.02	<0.1	0.03	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_QC120_190615**	**Field Duplicate**	**EP1905844**	0.07	0.07	0.58	0.04	1.88	<0.02	<0.1	0.05	0.16	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_QC220_190615**	**Interlab Duplicate**	**228322**	0.05	0.04	0.43	0.01	0.70	<0.02	0.03	0.04	0.10	0.02	0.03	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_SW034_190615**	**Normal**	**EP1905844**	0.04	0.05	0.44	<0.02	1.05	<0.02	<0.1	0.03	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**16 Jun 2019**	**0967_SW034_190616**	**Normal**	**EP1905847**	0.05	0.06	0.48	0.03	1.25	<0.02	<0.1	0.04	0.11	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**17 Jun 2019**	**0967_SW034_190617**	**Normal**	**EP1905846**	0.06	0.07	0.54	0.02	1.21	<0.02	<0.1	0.04	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**30 Oct 2019**	**0967_SW034_191030**	**Normal**	**EP1911234**	0.11	0.12	1.54	0.09	4.83	0.04	<0.1	0.04	0.23	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**07 May 2020**	**0967_SW034_200507**	**Normal**	**EP2004666**	0.09	0.07	0.62	0.04	1.63	<0.02	<0.1	<0.02	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_QC101_200630**	**Field Duplicate**	**EP2006825**	0.03	0.04	0.45	0.04	1.81	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_QC201_200630**	**Interlab Duplicate**	**729574**	0.02	0.03	0.41	0.03	1.6	<0.01	<0.05	0.02	0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_SW034_200630**	**Normal**	**EP2006825**	0.02	0.03	0.43	0.03	1.68	<0.02	<0.1	<0.02	0.06	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**01 Jul 2020**	**0967_SW034_200701**	**Normal**	**EP2006833**	0.46	0.50	4.50	0.24	18.0	0.05	0.3	0.30	1.26	0.11	0.24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05
Ki-it Monger Brook	**SW034**	**02 Jul 2020**	**0967_SW034_200702**	**Normal**	**EP2006908**	0.65	0.82	5.23	0.38	13.8	0.03	0.3	0.41	1.67	0.14	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**03 Jul 2020**	**0967_SW034_200703**	**Normal**	**EP2006949**	0.64	0.60	4.87	0.23	9.12	0.04	0.3	0.35	1.45	0.12	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**04 Jul 2020**	**0967_SW034_200704**	**Normal**	**EP2006971**	0.42	0.49	3.64	0.16	6.32	<0.02	0.1	0.28	0.97	0.08	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**22 Oct 2020**	**0967_SW034_201022**	**Normal**	**EP2011545**	0.08	0.11	1.13	0.08	3.87	<0.02	<0.1	0.03	0.17	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**31 May 2021**	**0967_SW034_210531**	**Normal**	**EP2106116**	0.42	0.39	3.36	0.15	6.35	0.02	0.2	0.31	1.04	0.08	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**01 Jun 2021**	**0967_SW034_210601**	**Normal**	**EP2106134**	0.35	0.35	3.16	0.13	7.70	0.03	0.1	0.23	0.92	0.06	0.18	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**02 Jun 2021**	**0967_SW034_210602**	**Normal**	**EP2106195**	0.26	0.25	2.25	0.11	5.76	<0.02	0.1	0.17	0.64	0.05	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**03 Jun 2021**	**0967_SW034_210603**	**Normal**	**EP2106262**	0.19	0.20	1.74	0.10	3.87	<0.02	<0.1	0.11	0.47	0.03	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**04 Jun 2021**	**0967_SW034_210604**	**Normal**	**EP2106323**	0.19	0.20	1.72	0.10	5.23	<0.02	<0.1	0.11	0.43	0.04	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_QC108_210907**	**Field Duplicate**	**EP2110448**	<0.02	<0.02	0.16	<0.02	0.32	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_QC208_210907**	**Interlab Duplicate**	**823604**	0.02	<0.01	0.14	<0.01	0.29	<0.01	<0.05	0.02	0.04	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_SW034_210907**	**Normal**	**EP2110448**	<0.02	<0.02	0.18	<0.02	0.33	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**21 Jun 2022**	**0967_SW034_220621**	**Normal**	**EP2207730**	0.04	0.03	0.33	<0.02	0.83	<0.02	<0.1	0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_QC107_220622**	**Field Duplicate**	**EP2207734**	0.04	0.05	0.42	0.03	1.16	<0.02	<0.1	0.03	0.11	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_QC207_220621**	**Interlab Duplicate**	**901660**	<0.1	<0.1	0.5	<0.2	1.2	<0.2	<0.1	<0.05	0.10	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_SW034_220622**	**Normal**	**EP2207734**	0.04	0.04	0.44	0.03	1.10	<0.02	<0.1	0.03	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**23 Jun 2022**	**0967_SW034_220623**	**Normal**	**EP2207824**	0.05	0.04	0.48	0.03	1.43	<0.02	<0.1	0.03	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**24 Jun 2022**	**0967_SW034_220624**	**Normal**	**EP2207891**	0.05	0.06	0.63	0.04	2.50	<0.02	<0.1	0.04	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_QC120_220625**	**Field Duplicate**	**EP2207911**	0.09	0.09	0.86	0.04	1.98	<0.02	<0.1	0.07	0.22	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_QC220_220625**	**Interlab Duplicate**	**902463**	0.07	0.06	0.69	0.03	1.7	<0.01	<0.05	0.05	0.15	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_SW034_220625**	**Normal**	**EP2207911**	0.08	0.09	0.90	0.05	2.34	<0.02	<0.1	0.07	0.21	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**19 Sep 2022**	**0967_SW034_220919**	**Normal**	**EP2212080**	0.02	0.03	0.29	<0.02	0.88	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**12 Apr 2023**	**0967_SW034_230412**	**Normal**	**EP2304601**	0.05	0.04	0.40	0.02	1.26	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**09 Jun 2023**	**0967_SW034_230609**	**Normal**	**EP2307643**	0.03	0.02	0.24	<0.02	0.66	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**10 Jun 2023**	**0967_SW034_230610**	**Normal**	**EP2307675**	0.40	0.40	3.33	0.14	6.16	<0.02	0.2	0.25	1.00	0.09	0.20	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**11 Jun 2023**	**0967_SW034_230611**	**Normal**	**EP2307678**	0.45	0.39	3.92	0.15	7.38	0.02	0.3	0.29	1.16	0.10	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**12 Jun 2023**	**0967_SW034_230612**	**Normal**	**EP2307715**	0.54	0.48	4.30	0.20	8.72	<0.02	0.3	0.34	1.34	0.12	0.30	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**13 Jun 2023**	**0967_SW034_230613**	**Normal**	**EP2307798**	0.32	0.36	2.38	0.11	5.50	<0.02	0.2	0.22	0.72	0.07	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW034**	**11 Sep 2023**	**0967_SW034_230911**	**Normal**	**EP2312522**	0.06	0.07	0.66	0.03	1.19	<0.02	<0.1	0.03	0.17	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**21 Sep 2016**	**RK_SW15**	**Normal**	**ES1622106**	0.0282	0.024	0.369	0.0149	1.01	<0.0005	<0.002	0.0051	0.022	0.003	0.0079	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	0.0007	<0.001
Ki-it Monger Brook	**SW035**	**22 Aug 2017**	**RK_SW15**	**Normal**	**EP1709097**	0.012	0.013	0.14	0.007	0.304	<0.002	<0.01	0.017	0.03	0.006	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ki-it Monger Brook	**SW035**	**30 Oct 2019**	**0967_SW035_191030**	**Normal**	**EP1911234**	0.09	0.09	1.21	0.07	3.87	<0.02	<0.1	0.06	0.21	0.03	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**06 May 2020**	**0967_SW035_200506**	**Normal**	**EP2004584**	0.04	0.04	0.44	0.02	1.24	<0.02	<0.1	<0.02	0.10	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**22 Oct 2020**	**0967_SW035_201022**	**Normal**	**EP2011545**	0.08	0.08	0.80	0.04	1.83	<0.02	<0.1	0.06	0.19	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**07 Sep 2021**	**0967_SW035_210907**	**Normal**	**EP2110448**	0.03	0.02	0.28	<0.02	0.78	<0.02	<0.1	0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**19 Sep 2022**	**0967_SW035_220919**	**Normal**	**EP2212080**	0.02	0.03	0.32	<0.02	0.97	<0.02	<0.1	<0.02	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**12 Apr 2023**	**0967_SW035_230412**	**Normal**	**EP2304601**	0.07	0.05	0.55	0.03	1.61	<0.02	<0.1	0.03	0.13	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW035**	**11 Sep 2023**	**0967_SW035_230911**	**Normal**	**EP2312522**	0.06	0.08	0.73	0.03	1.30	<0.02	<0.1	0.04	0.21	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																*0.56*												
PFAS NEMP 2020 Freshwater 95%										0.13						220												
PFAS NEMP 2020 Recreational Water																**10**												
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																							
Ki-it Monger Brook	**SW036**	**22 Jun 2022**	**0967_SW036_220622**	**Normal**	**EP2207734**	0.04	0.05	0.48	0.03	1.41	<0.02	<0.1	0.03	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05
Ki-it Monger Brook	**SW036**	**23 Jun 2022**	**0967_SW036_220623**	**Normal**	**EP2207824**	0.04	0.04	0.41	0.03	1.30	<0.02	<0.1	0.03	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**24 Jun 2022**	**0967_SW036_220624**	**Normal**	**EP2207893**	0.03	0.04	0.46	0.02	1.06	<0.02	<0.1	0.03	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**25 Jun 2022**	**0967_SW036_220625**	**Normal**	**EP2207911**	0.06	0.06	0.66	0.03	1.43	<0.02	<0.1	0.04	0.14	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**20 Sep 2022**	**0967_SW036_220920**	**Normal**	**EP2212158**	<0.02	<0.02	0.16	<0.02	0.22	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**09 Jun 2023**	**0967_SW036_230609**	**Normal**	**EP2307643**	0.03	0.03	0.30	<0.02	0.72	<0.02	<0.1	<0.02	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**10 Jun 2023**	**0967_SW036_230610**	**Normal**	**EP2307676**	0.05	0.04	0.40	<0.02	0.78	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**11 Jun 2023**	**0967_SW036_230611**	**Normal**	**EP2307678**	0.05	0.04	0.40	<0.02	0.82	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_QC118_230612**	**Field Duplicate**	**EP2307718**	0.12	0.12	0.78	0.03	1.70	<0.02	<0.1	0.08	0.25	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_QC218_230612**	**Interlab Duplicate**	**999535**	0.08	0.09	0.65	0.04	2.1	<0.01	0.07	0.05	0.19	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_SW036_230612**	**Normal**	**EP2307718**	0.12	0.12	0.80	0.03	1.74	<0.02	<0.1	0.08	0.25	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_QC125_230613**	**Field Duplicate**	**EP2307806**	0.12	0.16	0.93	0.04	1.74	<0.02	<0.1	0.15	0.28	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_QC225_230613**	**Interlab Duplicate**	**999535**	0.11	0.11	0.94	0.05	2.1	<0.01	0.09	0.08	0.26	0.03	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_SW036_230613**	**Normal**	**EP2307806**	0.13	0.13	1.01	0.04	1.64	<0.02	<0.1	0.08	0.31	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW036**	**18 Sep 2023**	**0967_SW036_230918**	**Normal**	**EP2312965**	0.04	0.04	0.43	<0.02	0.63	<0.02	<0.1	0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**27 Oct 2016**	**RE_SW17**	**Normal**	**EP1610241**	0.0214	0.0148	0.324	0.0048	0.439	<0.0005	<0.002	0.0029	0.0075	0.0013	0.0026	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW037**	**27 Oct 2016**	**RE_SW17**	**Normal**	**EP1611527**	0.0214	0.0148	0.324	0.0048	0.439	<0.0005	<0.002	0.0029	0.0075	0.0013	0.0026	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW037**	**04 Sep 2017**	**RE_SW17**	**Normal**	**EP1709698**	0.003	0.003	0.018	<0.002	0.019	<0.002	<0.01	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW037**	**04 Sep 2017**	**RE_SW17**	**Normal**	**EP1710899**	0.003	0.003	0.018	<0.002	0.019	<0.002	<0.01	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW037**	**07 Nov 2019**	**0967_SW037_191107**	**Normal**	**EP1911618**	0.07	0.08	0.99	0.03	0.79	<0.02	<0.1	0.03	0.20	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**12 Oct 2020**	**0967_SW037_201012**	**Normal**	**EP2010999**	0.04	0.04	0.50	0.02	1.44	<0.02	<0.1	0.04	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**10 Aug 2021**	**0967_SW037_210810**	**Normal**	**EP2109323**	<0.02	<0.02	0.07	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**24 Aug 2021**	**0967_SW037_210824**	**Normal**	**EP2109842**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**09 Sep 2021**	**0967_SW037_210909**	**Normal**	**EP2110595**	<0.02	<0.02	0.04	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**20 Sep 2022**	**0967_SW037_220920**	**Normal**	**EP2212158**	<0.02	<0.02	0.15	<0.02	0.09	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW037**	**18 Sep 2023**	**0967_SW037_230918**	**Normal**	**EP2312965**	0.04	0.04	0.42	0.02	0.73	<0.02	<0.1	0.02	0.12	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**27 Oct 2016**	**RE_SW18**	**Normal**	**EP1610241**	0.0639	0.0462	0.924	0.0232	1.94	<0.0005	<0.002	0.0128	0.0295	0.0046	0.0132	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.012	<0.001	<0.001	0.001	<0.001
Ellen Brook	**SW038**	**27 Oct 2016**	**RE_SW18**	**Normal**	**EP1611524**	0.0639	0.0462	0.924	0.0232	1.94	<0.0005	<0.002	0.0128	0.0295	0.0046	0.0132	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.012	<0.001	<0.001	0.0010	<0.001
Ellen Brook	**SW038**	**04 Sep 2017**	**RE_SW18**	**Normal**	**EP1709698**	0.004	0.004	0.028	<0.002	0.043	<0.002	<0.01	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW038**	**04 Sep 2017**	**RE_SW18**	**Normal**	**EP1710911**	0.004	0.004	0.028	<0.002	0.043	<0.002	<0.01	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW038**	**13 Jun 2019**	**0967_SW038_190613**	**Normal**	**EP1905805**	0.14	0.14	1.01	0.06	2.88	<0.02	<0.1	0.09	0.30	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**14 Jun 2019**	**0967_SW038_190614**	**Normal**	**EP1905807**	0.11	0.13	1.02	0.05	2.31	<0.02	<0.1	0.10	0.40	0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**15 Jun 2019**	**0967_QC223_190615**	**Interlab Duplicate**	**228322**	0.08	0.07	0.60	0.03	1.3	<0.02	0.05	0.06	0.17	0.03	0.04	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05
Ellen Brook	**SW038**	**15 Jun 2019**	**0967_SW038_190615**	**Normal**	**EP1905844**	0.07	0.07	0.56	0.04	1.86	<0.02	<0.1	0.04	0.16	0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**16 Jun 2019**	**0967_SW038_190616**	**Normal**	**EP1905847**	0.08	0.09	0.74	0.04	1.85	<0.02	<0.1	0.06	0.18	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**17 Jun 2019**	**0967_SW038_190617**	**Normal**	**EP1905846**	0.10	0.11	0.88	0.04	2.21	<0.02	<0.1	0.07	0.20	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**07 Nov 2019**	**0967_SW038_191107**	**Normal**	**EP1911618**	0.05	0.06	0.79	0.03	1.27	<0.02	<0.1	0.03	0.14	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**30 Jun 2020**	**0967_SW038_200630**	**Normal**	**EP2006828**	0.07	0.07	0.62	0.03	1.78	<0.02	<0.1	0.04	0.16	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**01 Jul 2020**	**0967_SW038_200701**	**Normal**	**EP2006822**	0.07	0.07	0.71	0.04	2.03	<0.02	<0.1	0.05	0.21	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**01 Jul 2020**	**0967_SW038_200701**	**Normal**	**EP2006833**	<0.02	<0.02	0.09	<0.02	0.15	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**02 Jul 2020**	**0967_SW038_200702**	**Normal**	**EP2006881**	0.23	0.28	2.01	0.10	4.75	<0.02	<0.2	0.15	0.54	0.04	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**03 Jul 2020**	**0967_SW038_200703**	**Normal**	**EP2006949**	0.23	0.21	1.79	0.08	4.66	<0.02	<0.1	0.14	0.56	0.05	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**04 Jul 2020**	**0967_SW038_200704**	**Normal**	**EP2006964**	0.25	0.27	2.10	0.12	5.40	<0.02	<0.1	0.17	0.63	0.06	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**12 Oct 2020**	**0967_SW038_201012**	**Normal**	**EP2010999**	0.07	0.07	0.93	0.05	2.95	<0.02	<0.1	0.08	0.21	0.03	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**31 May 2021**	**0967_SW038_210531**	**Normal**	**EP2106119**	0.14	0.11	0.86	0.03	1.52	<0.02	<0.1	0.07	0.28	0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**01 Jun 2021**	**0967_SW038_210601**	**Normal**	**EP2106150**	0.22	0.22	1.60	0.07	3.08	<0.02	0.1	0.15	0.48	0.04	0.10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**02 Jun 2021**	**0967_SW038_210602**	**Normal**	**EP2106207**	0.23	0.16	1.64	0.06	2.93	<0.02	0.1	0.14	0.48	0.04	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**03 Jun 2021**	**0967_SW038_210603**	**Normal**	**EP2106284**	0.16	0.16	1.30	0.05	2.97	<0.02	<0.1	0.09	0.40	0.03	0.08	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**04 Jun 2021**	**0967_SW038_210604**	**Normal**	**EP2106321**	0.16	0.15	1.16	0.05	2.50	<0.02	<0.1	0.09	0.33	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**09 Sep 2021**	**0967_SW038_210909**	**Normal**	**EP2110595**	0.02	0.02	0.22	<0.02	0.59	<0.02	<0.1	0.02	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**21 Jun 2022**	**0967_SW038_220621**	**Normal**	**EP2207730**	<0.02	<0.02	0.04	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**22 Jun 2022**	**0967_SW038_220622**	**Normal**	**EP2207734**	<0.02	<0.02	0.05	<0.02	0.11	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**23 Jun 2022**	**0967_SW038_220623**	**Normal**	**EP2207824**	<0.02	<0.02	0.06	<0.02	0.12	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**24 Jun 2022**	**0967_SW038_220624**	**Normal**	**EP2207893**	<0.02	0.02	0.24	<0.02	0.83	<0.02	<0.1	<0.02	0.05	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**25 Jun 2022**	**0967_SW038_220625**	**Normal**	**EP2207911**	<0.02	<0.02	0.09	<0.02	0.16	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**20 Sep 2022**	**0967_SW038_220920**	**Normal**	**EP2212158**	<0.02	<0.02	0.09	<0.02	0.20	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**09 Jun 2023**	**0967_SW038_230609**	**Normal**	**EP2307643**	0.04	0.03	0.32	<0.02	0.79	<0.02	<0.1	0.02	0.09	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting						0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																*0.56*												
PFAS NEMP 2020 Freshwater 95%										0.13						220												
PFAS NEMP 2020 Recreational Water																**10**												
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																							
Ellen Brook	**SW038**	**10 Jun 2023**	**0967_SW038_230610**	**Normal**	**EP2307676**	0.05	0.04	0.40	<0.02	0.80	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**11 Jun 2023**	**0967_SW038_230611**	**Normal**	**EP2307678**	0.05	0.04	0.42	<0.02	0.87	<0.02	<0.1	0.02	0.10	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**12 Jun 2023**	**0967_SW038_230612**	**Normal**	**EP2307718**	0.11	0.11	0.79	0.02	1.82	<0.02	<0.1	0.07	0.28	0.03	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**13 Jun 2023**	**0967_SW038_230613**	**Normal**	**EP2307806**	0.13	0.14	0.92	0.04	1.70	<0.02	<0.1	0.16	0.28	0.03	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW038**	**18 Sep 2023**	**0967_SW038_230918**	**Normal**	**EP2312965**	0.04	0.04	0.46	0.02	0.83	<0.02	<0.1	0.02	0.11	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW042**	**26 Oct 2016**	**RE_SW22**	**Normal**	**EP1610186**	0.0118	0.0084	0.0687	0.0016	0.0474	<0.0005	<0.002	0.0021	0.0035	0.0008	0.0017	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ellen Brook	**SW042**	**19 Nov 2019**	**0967_SW042_191119**	**Normal**	**EP1912126**	<0.02	<0.02	0.08	<0.02	0.10	<0.02	<0.1	0.06	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW042**	**14 Oct 2020**	**0967_SW042_201014**	**Normal**	**EP2011183**	1.37	1.17	6.36	0.29	1.21	<0.02	<0.1	0.37	2.03	0.20	0.25	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW042**	**07 Sep 2021**	**0967_SW042_210907**	**Normal**	**EP2110445**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW042**	**23 Sep 2022**	**0967_SW042_220923**	**Normal**	**EP2212363**	<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW042**	**15 Sep 2023**	**0967_SW042_230915**	**Normal**	**EP2312794**	<0.02	<0.02	<0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**27 Oct 2016**	**RK_SW24**	**Normal**	**EP1610241**	0.0242	0.0154	0.308	0.0069	0.845	<0.0005	<0.002	0.0079	0.0112	0.0033	0.0059	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.002	<0.001	<0.001	<0.0005	<0.001
Ki-it Monger Brook	**SW044**	**22 Aug 2017**	**RK_SW24**	**Normal**	**EP1709097**	0.004	0.003	0.031	<0.002	0.051	<0.002	<0.01	0.011	0.009	0.003	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_QC101_191022**	**Field_D**	**EP1910841**	0.04	0.03	0.41	<0.02	2.09	<0.02	<0.1	0.06	0.10	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_QC201_191022**	**Interlab_D**	**684560**	0.02	0.03	0.48	0.01	2.2	<0.01	<0.05	0.04	0.08	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_SW044_191022**	**Normal**	**EP1910841**	0.03	0.03	0.37	<0.02	1.80	<0.02	<0.1	0.05	0.10	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**12 Oct 2020**	**0967_SW044_201012**	**Normal**	**EP2011010**	<0.02	<0.02	0.07	<0.02	0.30	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_QC106_210907**	**Field_D**	**EP2110448**	<0.02	<0.02	0.05	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_QC206_210907**	**Interlab_D**	**823604**	0.01	<0.01	0.05	<0.01	0.10	<0.01	<0.05	0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_SW044_210907**	**Normal**	**EP2110448**	<0.02	<0.02	0.04	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_QC103_220919**	**Field_D**	**EP2212080**	<0.02	<0.02	0.13	<0.02	0.38	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_QC203_220919**	**Interlab_D**	**926012**	0.01	<0.01	0.08	<0.01	0.30	<0.01	<0.05	0.02	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_SW044_220919**	**Normal**	**EP2212080**	<0.02	<0.02	0.15	<0.02	0.41	<0.02	<0.1	<0.02	0.04	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_QC101_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.02	0.10	<0.02	0.40	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_QC201_230911**	**Interlab Duplicate**	**1026632**	<0.01	<0.01	0.08	<0.01	0.47	<0.01	<0.05	0.02	0.02	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_SW044_230911**	**Normal**	**EP2312522**	<0.02	<0.02	0.09	<0.02	0.42	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**27 Oct 2016**	**RK_SW26**	**Normal**	**EP1610241**	0.0135	0.0068	0.0532	0.0013	0.0573	<0.0005	<0.002	0.0041	0.0063	0.0018	0.0035	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.001
Ki-it Monger Brook	**SW046**	**22 Oct 2019**	**0967_SW046_191022**	**Normal**	**EP1910841**	<0.02	<0.02	0.07	<0.02	0.09	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_QC103_201012**	**Field Duplicate**	**EP2011010**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_QC203_201012**	**Interlab Duplicate**	**750345**	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_SW046_201012**	**Normal**	**EP2011010**	<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**09 Aug 2021**	**0967_SW046_210809**	**Normal**	**EP2109323**	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**24 Aug 2021**	**0967_SW046_210824**	**Normal**	**EP2109842**	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**08 Sep 2021**	**0967_SW046_210908**	**Normal**	**EP2110527**	<0.02	<0.02	0.03	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**19 Sep 2022**	**0967_SW046_220919**	**Normal**	**EP2212080**	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ki-it Monger Brook	**SW046**	**13 Sep 2023**	**0967_SW046_230913**	**Normal**	**EP2312634**	<0.02	<0.02	0.01	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**28 Apr 2017**	**RE_SW27**	**Normal**	**EP1704272**	0.354	0.229	1.23	0.033	0.568	<0.002	<0.01	0.121	0.25	0.049	0.072	0.007	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW047**	**24 Aug 2017**	**RE_SW27**	**Normal**	**EP1709164**	0.003	0.002	0.01	<0.002	0.033	<0.002	<0.01	<0.002	0.003	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW047**	**22 Oct 2019**	**0967_SW047_191022**	**Normal**	**EP1910841**	<0.02	<0.02	0.07	<0.02	0.07	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**22 Oct 2020**	**0967_SW047_201022**	**Normal**	**EP2011545**	<0.02	<0.02	0.07	<0.02	0.10	<0.02	<0.1	0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**10 Aug 2021**	**0967_SW047_210810**	**Normal**	**EP2109323**	<0.02	<0.02	0.06	<0.02	0.14	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**24 Aug 2021**	**0967_SW047_210824**	**Normal**	**EP2109842**	<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**08 Sep 2021**	**0967_SW047_210908**	**Normal**	**EP2110529**	<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_QC115_220920**	**Field Duplicate**	**EP2212158**	<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_QC215_220920**	**Interlab Duplicate**	**926012**	<0.01	<0.01	0.02	<0.01	0.04	<0.01	<0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_SW047_220920**	**Normal**	**EP2212158**	<0.02	<0.02	0.04	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW047**	**18 Sep 2023**	**0967_SW047_230918**	**Normal**	**EP2312965**	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**28 Apr 2017**	**RE_SW28**	**Normal**	**EP1704272**	0.019	0.012	0.088	0.005	0.21	<0.002	<0.01	0.012	0.017	0.003	0.008	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW048**	**24 Aug 2017**	**RE_SW28**	**Normal**	**EP1709164**	0.003	0.002	0.01	<0.002	0.035	<0.002	<0.01	<0.002	0.003	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW048**	**13 Jun 2019**	**0967_SW048_190613**	**Normal**	**EP1905805**	0.03	0.03	0.21	<0.02	0.62	<0.02	<0.1	0.04	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**14 Jun 2019**	**0967_SW048_190614**	**Normal**	**EP1905807**	<0.02	<0.02	0.13	<0.02	0.29	<0.02	<0.1	0.03	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**15 Jun 2019**	**0967_SW048_190615**	**Normal**	**EP1905844**	0.03	0.03	0.22	<0.02	0.53	<0.02	<0.1	0.03	0.08	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**16 Jun 2019**	**0967_SW048_190616**	**Normal**	**EP1905847**	0.02	<0.02	0.16	<0.02	0.38	<0.02	<0.1	0.04	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**17 Jun 2019**	**0967_SW048_190617**	**Normal**	**EP1905846**	<0.02	<0.02	0.09	<0.02	0.25	<0.02	<0.1	0.03	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**22 Oct 2019**	**0967_SW048_191022**	**Normal**	**EP1910841**	<0.02	<0.02	0.07	<0.02	0.08	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**30 Jun 2020**	**0967_SW048_200630**	**Normal**	**EP2006825**	<0.02	<0.02	0.04	<0.02	0.11	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**01 Jul 2020**	**0967_SW048_200701**	**Normal**	**EP2006822**	<0.02	<0.02	0.08	<0.02	0.23	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_QC101_200702**	**Field Duplicate**	**EP2006881**	<0.02	<0.02	0.10	<0.02	0.22	<0.02	<0.1	<0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_QC201_200702**	**Interlab Duplicate**	**729906**	0.03	0.01	0.10	<0.01	0.20	<0.01	<0.05	0.02	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_SW048_200702**	**Normal**	**EP2006881**	<0.02	<0.02	0.10	<0.02	0.18	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**03 Jul 2020**	**0967_SW048_200703**	**Normal**	**EP2006957**	<0.02	<0.02	0.07	<0.02	0.16	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**04 Jul 2020**	**0967_SW048_200704**	**Normal**	**EP2006964**	<0.02	<0.02	0.05	<0.02	0.15	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**31 May 2021**	**0967_SW048_210531**	**Normal**	**EP2106119**	0.03	0.02	0.19	<0.02	0.34	<0.02	<0.1	<0.02	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**01 Jun 2021**	**0967_SW048_210601**	**Normal**	**EP2106150**	<0.02	<0.02	0.13	<0.02	0.23	<0.02	<0.1	<0.02	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**02 Jun 2021**	**0967_SW048_210602**	**Normal**	**EP2106207**	<0.02	<0.02	0.09	<0.02	0.18	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**03 Jun 2021**	**0967_SW048_210603**	**Normal**	**EP2106284**	<0.02	<0.02	0.10	<0.02	0.22	<0.02	<0.1	<0.02	0.03	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**04 Jun 2021**	**0967_SW048_210604**	**Normal**	**EP2106321**	<0.02	<0.02	0.08	<0.02	0.16	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**08 Sep 2021**	**0967_SW048_210908**	**Normal**	**EP2110529**	<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**21 Jun 2022**	**0967_SW048_220621**	**Normal**	**EP2207730**	<0.02	<0.02	0.06	<0.02	0.11	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**22 Jun 2022**	**0967_SW048_220622**	**Normal**	**EP2207734**	<0.02	<0.02	0.05	<0.02	0.11	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**23 Jun 2022**	**0967_SW048_220623**	**Normal**	**EP2207824**	<0.02	<0.02	0.05	<0.02	0.13	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**24 Jun 2022**	**0967_SW048_220624**	**Normal**	**EP2207893**	<0.02	<0.02	0.09	<0.02	0.28	<0.02	<0.1	0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**25 Jun 2022**	**0967_SW048_220625**	**Normal**	**EP2207911**	<0.02	<0.02	0.06	<0.02	0.11	<0.02	<0.1	0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**21 Sep 2022**	**0967_SW048_220921**	**Normal**	**EP2212258**	<0.02	<0.02	0.04	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**09 Jun 2023**	**0967_SW048_230609**	**Normal**	**EP2307634**	0.05	<0.02	0.16	<0.02	0.39	<0.02	<0.1	0.03	0.04	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW048**	**10 Jun 2023**	**0967_QC108_230610**	**Field Duplicate**	**EP2307676**	<0.02	<0.02	0.13	<0.02	0.26	<0.02

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting							0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																	*0.56*												
PFAS NEMP 2020 Freshwater 95%											0.13						220												
PFAS NEMP 2020 Recreational Water																	**10**												
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																								
Ellen Brook	**SW049**	**13 Jun 2019**	**0967_SW049_190613**	**Normal**	**EP1905805**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**14 Jun 2019**	**0967_SW049_190614**	**Normal**	**EP1905807**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**15 Jun 2019**	**0967_SW049_190615**	**Normal**	**EP1905844**		<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**16 Jun 2019**	**0967_SW049_190616**	**Normal**	**EP1905847**		<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**17 Jun 2019**	**0967_SW049_190617**	**Normal**	**EP1905846**		0.02	0.02	0.18	<0.02	0.32	<0.02	<0.1	0.04	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**04 Dec 2019**	**0967_SW049_191204**	**Normal**	**EP1912893**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**30 Jun 2020**	**0967_SW049_200630**	**Normal**	**EP2006825**		<0.02	<0.02	0.06	<0.02	0.17	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_QC101_200701**	**Field Duplicate**	**EP2006822**		<0.02	<0.02	0.05	<0.02	0.14	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_QC201_01072020**	**Interlab Duplicate**	**729577**		<0.01	<0.01	0.05	<0.01	0.14	<0.01	<0.05	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_SW049_200701**	**Normal**	**EP2006822**		<0.02	<0.02	0.06	<0.02	0.16	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**02 Jul 2020**	**0967_SW049_200702**	**Normal**	**EP2006881**		<0.02	<0.02	0.16	<0.02	0.28	<0.02	<0.1	<0.02	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**03 Jul 2020**	**0967_SW049_200703**	**Normal**	**EP2006957**		<0.02	<0.02	0.08	<0.02	0.22	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**04 Jul 2020**	**0967_SW049_200704**	**Normal**	**EP2006964**		<0.02	<0.02	0.07	<0.02	0.19	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**22 Oct 2020**	**0967_SW049_201022**	**Normal**	**EP2011545**		<0.02	<0.02	0.08	<0.02	0.14	<0.02	<0.1	0.02	0.03	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**31 May 2021**	**0967_SW049_210531**	**Normal**	**EP2106119**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**01 Jun 2021**	**0967_SW049_210601**	**Normal**	**EP2106150**		<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_QC107_210602**	**Field Duplicate**	**EP2106207**		<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_QC207_210602**	**Interlab Duplicate**	**800405**		<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_SW049_210602**	**Normal**	**EP2106207**		<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_QC112_210603**	**Field Duplicate**	**EP2106284**		<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_QC212_210603**	**Interlab Duplicate**	**800794**		<0.01	<0.01	0.02	<0.01	0.07	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_SW049_210603**	**Normal**	**EP2106284**		<0.02	<0.02	0.02	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_QC115_210604**	**Field Duplicate**	**EP2106321**		<0.02	<0.02	0.03	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_QC216_210604**	**Interlab Duplicate**	**801498**		<0.01	<0.01	0.02	<0.01	0.08	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_SW049_210604**	**Normal**	**EP2106321**		<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**08 Sep 2021**	**0967_SW049_210908**	**Normal**	**EP2110529**		<0.02	<0.02	0.02	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**21 Jun 2022**	**0967_SW049_220621**	**Normal**	**EP2207730**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**22 Jun 2022**	**0967_SW049_220622**	**Normal**	**EP2207734**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**23 Jun 2022**	**0967_SW049_220623**	**Normal**	**EP2207824**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**24 Jun 2022**	**0967_SW049_220624**	**Normal**	**EP2207893**		<0.02	<0.02	0.05	<0.02	0.20	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**25 Jun 2022**	**0967_SW049_220625**	**Normal**	**EP2207911**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**21 Sep 2022**	**0967_SW049_220921**	**Normal**	**EP2212258**		<0.02	<0.02	0.04	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**09 Jun 2023**	**0967_SW049_230609**	**Normal**	**EP2307634**		0.03	0.03	0.24	<0.02	0.56	<0.02	<0.1	0.04	0.07	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**10 Jun 2023**	**0967_SW049_230610**	**Normal**	**EP2307676**		0.03	0.02	0.21	<0.02	0.40	<0.02	<0.1	0.03	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**11 Jun 2023**	**0967_SW049_230611**	**Normal**	**EP2307678**		0.03	0.02	0.22	<0.02	0.42	<0.02	<0.1	0.03	0.07	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**11 Jun 2023**	**0967_SW049_230611**	**Normal**	**EP2307678**		0.02	<0.02	0.13	<0.02	0.28	<0.02	<0.1	0.03	0.04	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**12 Jun 2023**	**0967_SW049_230612**	**Normal**	**EP2307718**		0.03	0.02	0.19	<0.02	0.31	<0.02	<0.1	0.03	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_QC124_230613**	**Field Duplicate**	**EP2307806**		0.02	<0.02	0.15	<0.02	0.23	<0.02	<0.1	0.03	0.05	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_QC224_230613**	**Interlab Duplicate**	**999535**		0.02	0.01	0.12	<0.01	0.28	<0.01	<0.05	0.03	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_SW049_230613**	**Normal**	**EP2307806**		0.02	<0.02	0.14	<0.02	0.22	<0.02	<0.1	0.03	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW049**	**19 Sep 2023**	**0967_SW049_230919**	**Normal**	**EP2312965**		<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**28 Apr 2017**	**RE_SW30**	**Normal**	**EP1704272**		0.008	<0.002	0.019	<0.002	0.045	<0.002	<0.01	0.012	0.009	0.003	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW050**	**24 Aug 2017**	**RE_SW30**	**Normal**	**EP1709164**		0.002	<0.002	0.01	<0.002	0.035	<0.002	<0.01	<0.002	0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW050**	**08 Mar 2019**	**0967_SW050_190308**	**Normal**	**EP1902156**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**23 Oct 2019**	**0967_SW050_191023**	**Normal**	**EP1910898**		<0.02	<0.02	0.06	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**06 May 2020**	**0967_SW050_200506**	**Normal**	**EP2004586**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**22 Oct 2020**	**0967_SW050_201022**	**Normal**	**EP2011545**		<0.02	<0.02	0.06	<0.02	0.11	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**08 Sep 2021**	**0967_SW050_210908**	**Normal**	**EP2110529**		<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**21 Apr 2022**	**0967_SW050_220421**	**Normal**	**EP2204670**		<0.02	<0.02	<0.01	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**21 Sep 2022**	**0967_SW050_220921**	**Normal**	**EP2212258**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_QC104_230411**	**Field Duplicate**	**EP2304521**		<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_QC204_230411**	**Interlab Duplicate**	**982488**		<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.05	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_SW050_230411**	**Normal**	**EP2304521**		<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW050**	**18 Sep 2023**	**0967_SW050_230918**	**Normal**	**EP2312965**		<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**28 Apr 2017**	**RE_SW32**	**Normal**	**EP1704272**		0.005	<0.002	0.012	<0.002	0.016	<0.002	<0.01	0.01	0.006	0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW052**	**28 Apr 2017**	**SW_FD05**	**Field Duplicate**	**EP1704272**		<0.02		<0.02		<0.01		<0.1	<0.02	<0.02	<0.02	<0.01								<0.05	<0.05	<0.05	<0.05		
Ellen Brook	**SW052**	**28 Apr 2017**	**SW_FS05**	**Interlab Duplicate**	**166077**				0.01		0.01						<0.01									<0.01	<0.01			
Ellen Brook	**SW052**	**24 Aug 2017**	**RE_SW32**	**Normal**	**EP1709164**		0.004	0.003	0.025	<0.002	0.031	<0.002	<0.01	0.005	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Ellen Brook	**SW052**	**08 Mar 2019**	**0967_QC108_190308**	**Field Duplicate**	**EP1902156**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**08 Mar 2019**	**0967_SW052_190308**	**Normal**	**EP1902156**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**08 Mar 2019**	**QC208_190308**	**Interlab Duplicate**	**223469**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.05	<0.1	<0.5	<0.01	<0.01	<0.01	<0.01	<0.1	<0.05
Ellen Brook	**SW052**	**22 Oct 2019**	**0967_SW052_191022**	**Normal**	**EP1910841**		<0.02	<0.02	0.03	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**06 May 2020**	**0967_SW052_200506**	**Normal**	**EP2004586**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**12 Oct 2020**	**0967_SW052_201012**	**Normal**	**EP2010999**		<0.02	<0.02	0.04	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**20 Apr 2021**	**0967_SW052_210420**	**Normal**	**EP2104281**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_QC110_210908**	**Field Duplicate**	**EP2110529**		<0.02	<0.02	0.03	<0.02	0.06	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_QC210_210908**	**Interlab Duplicate**	**823602**		<0.01	<0.01	0.04	<0.01	0.05	<0.01	<0.05	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_SW052_210908**	**Normal**	**EP2110529**		<0.02	<0.02	0.03	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**21 Apr 2022**	**0967_QC113_220421**	**Field Duplicate**	**EP2204670**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**21 Apr 2022**	**0967_SW052_220421**	**Normal**	**EP2204670**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**21 Sep 2022**	**0967_SW052_220921**	**Normal**	**EP2212258**		<0.02	<0.02	0.04	<0.02	0.07	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**11 Apr 2023**	**0967_SW052_230411**	**Normal**	**EP2304521**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Ellen Brook	**SW052**	**19 Sep 2023**	**0967_SW052_230919**	**Normal**	**EP2312965**		<0.02	<0.02	0.04	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW053**	**25 Aug 2017**	**WB_SW33**	**Normal**	**EP1709257**		<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
West Bullsbrook	**SW053**	**19 Nov 2019**	**0967_SW053_191119**	**Normal**	**EP1912126**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW053**	**14 Oct 2020**	**0967_SW053_201014**	**Normal**	**EP2011173**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW053**	**06 Sep 2021**

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting							0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																	*0.56*											
PFAS NEMP 2020 Freshwater 95%											0.13						220											
PFAS NEMP 2020 Recreational Water																	**10**											
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																								
West Bullsbrook	**SW055**	**16 Jun 2019**	**0967_SW055_190616**	**Normal**	**EP1905847**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**17 Jun 2019**	**0967_SW055_190617**	**Normal**	**EP1905846**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**19 Nov 2019**	**0967_SW055_191119**	**Normal**	**EP1912126**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**30 Jun 2020**	**0967_SW055_200630**	**Normal**	**EP2006828**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**01 Jul 2020**	**0967_SW055_200701**	**Normal**	**EP2006822**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**02 Jul 2020**	**0967_SW055_200702**	**Normal**	**EP2006881**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**03 Jul 2020**	**0967_SW055_200703**	**Normal**	**EP2006957**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**04 Jul 2020**	**0967_SW055_200704**	**Normal**	**EP2006966**		<0.02	<0.02	<0.02	<0.02	0.17	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**14 Oct 2020**	**0967_SW055_201014**	**Normal**	**EP2011183**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**11 Aug 2021**	**0967_SW055_210811**	**Normal**	**EP2109323**		<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**25 Aug 2021**	**0967_SW055_210825**	**Normal**	**EP2109842**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**06 Sep 2021**	**0967_SW055_210906**	**Normal**	**EP2110383**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**21 Jun 2022**	**0967_SW055_220621**	**Normal**	**EP2207730**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**22 Jun 2022**	**0967_SW055_220622**	**Normal**	**EP2207734**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**23 Jun 2022**	**0967_SW055_220623**	**Normal**	**EP2207824**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**24 Jun 2022**	**0967_SW055_220624**	**Normal**	**EP2207891**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**25 Jun 2022**	**0967_SW055_220625**	**Normal**	**EP2207911**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**21 Sep 2022**	**0967_SW055_220921**	**Normal**	**EP2212258**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**09 Jun 2023**	**0967_SW055_230609**	**Normal**	**EP2307634**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**10 Jun 2023**	**0967_SW055_230610**	**Normal**	**EP2307676**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**11 Jun 2023**	**0967_SW055_230611**	**Normal**	**EP2307678**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**12 Jun 2023**	**0967_SW055_230612**	**Normal**	**EP2307715**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**13 Jun 2023**	**0967_SW055_230613**	**Normal**	**EP2307806**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW055**	**14 Sep 2023**	**0967_SW055_230914**	**Normal**	**EP2312711**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW057**	**25 Aug 2017**	**WB_SW37**	**Normal**	**EP1709257**		0.002	<0.002	0.015	<0.002	0.011	<0.002	<0.01	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
West Bullsbrook	**SW057**	**07 Nov 2019**	**0967_SW057_191107**	**Normal**	**EP1911618**		<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW057**	**22 Oct 2020**	**0967_SW057_201022**	**Normal**	**EP2011560**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW057**	**09 Sep 2021**	**0967_SW057_210909**	**Normal**	**EP2110595**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW057**	**19 Sep 2022**	**0967_SW057_220919**	**Normal**	**EP2212055**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW057**	**15 Sep 2023**	**0967_SW057_230915**	**Normal**	**EP2312794**		<0.02	<0.02	0.02	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**25 Aug 2017**	**WB_SW38**	**Normal**	**EP1709257**		0.002	0.002	0.021	<0.002	0.01	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
West Bullsbrook	**SW058**	**13 Jun 2019**	**0967_SW058_190613**	**Normal**	**EP1905805**		<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**14 Jun 2019**	**0967_SW058_190614**	**Normal**	**EP1905807**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**15 Jun 2019**	**0967_SW058_190615**	**Normal**	**EP1905844**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**17 Jun 2019**	**0967_SW058_190617**	**Normal**	**EP1905846**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**28 Oct 2019**	**0967_SW058_191028**	**Normal**	**EP1911090**		<0.02	<0.02	0.03	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_QC102_200630**	**Field Duplicate**	**EP2006828**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_QC202_200630**	**Interlab Duplicate**	**729574**		<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_SW058_200630**	**Normal**	**EP2006828**		<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**01 Jul 2020**	**0967_SW058_200701**	**Normal**	**EP2006822**		<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**02 Jul 2020**	**0967_SW058_200702**	**Normal**	**EP2006881**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**03 Jul 2020**	**0967_SW058_200703**	**Normal**	**EP2006957**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**04 Jul 2020**	**0967_SW058_200704**	**Normal**	**EP2006964**		<0.02	<0.02	0.02	<0.02	0.14	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**12 Oct 2020**	**0967_SW058_201012**	**Normal**	**EP2010999**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**31 May 2021**	**0967_SW058_210531**	**Normal**	**EP2106119**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**10 Aug 2021**	**0967_SW058_210810**	**Normal**	**EP2109323**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**24 Aug 2021**	**0967_SW058_210824**	**Normal**	**EP2109842**		<0.02	<0.02	0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**07 Sep 2021**	**0967_SW058_210907**	**Normal**	**EP2110445**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**21 Jun 2022**	**0967_SW058_220621**	**Normal**	**EP2207730**		<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**22 Jun 2022**	**0967_SW058_220622**	**Normal**	**EP2207734**		<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**23 Jun 2022**	**0967_SW058_220623**	**Normal**	**EP2207824**		<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**24 Jun 2022**	**0967_SW058_220624**	**Normal**	**EP2207891**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**25 Jun 2022**	**0967_SW058_220625**	**Normal**	**EP2207911**		<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_QC110_220919**	**Field Duplicate**	**EP2212080**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_QC210_220919**	**Interlab Duplicate**	**926012**		<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.05	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_SW058_220919**	**Normal**	**EP2212080**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**09 Jun 2023**	**0967_SW058_230609**	**Normal**	**EP2307634**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**10 Jun 2023**	**0967_SW058_230610**	**Normal**	**EP2307675**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**11 Jun 2023**	**0967_SW058_230611**	**Normal**	**EP2307678**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**12 Jun 2023**	**0967_SW058_230612**	**Normal**	**EP2307718**		<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**13 Jun 2023**	**0967_SW058_230613**	**Normal**	**EP2307806**		<0.02	<0.02	0.02	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW058**	**14 Sep 2023**	**0967_SW058_230914**	**Normal**	**EP2312711**		<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW059**	**25 Aug 2017**	**WB_SW39**	**Normal**	**EP1709257**		0.004	0.002	0.022	<0.002	0.012	<0.002	<0.01	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
West Bullsbrook	**SW059**	**28 Oct 2019**	**0967_SW059_191028**	**Normal**	**EP1911090**		<0.02	<0.02	0.03	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW059**	**12 Oct 2020**	**0967_SW059_201012**	**Normal**	**EP2010999**		<0.02	<0.02	0.03	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW059**	**07 Sep 2021**	**0967_SW059_210907**	**Normal**	**EP2110445**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW059**	**19 Sep 2022**	**0967_SW059_220919**	**Normal**	**EP2212080**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW059**	**14 Sep 2023**	**0967_SW059_230914**	**Normal**	**EP2312711**		<0.02	<0.02	0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**25 Aug 2017**	**WB_SW40**	**Normal**	**EP1709257**		0.003	0.003	0.021	<0.002	0.012	<0.002	<0.01	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
West Bullsbrook	**SW060**	**13 Jun 2019**	**0967_SW060_190613**	**Normal**	**EP1905805**		<0.02	<0.02	0.03	<0.02	0.08	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**14 Jun 2019**	**0967_SW060_190614**	**Normal**	**EP1905807**		<0.02	<0.02	0.03	<0.02	0.07	<0.02	<0.1	<0.02	0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**15 Jun 2019**	**0967_SW060_190615**	**Normal**	**EP1905844**		<0.02	<0.02	0.14	<0.02	0.29	<0.02	<0.1	0.06	0.06	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**16 Jun 2019**	**0967_SW060_190616**	**Normal**	**EP1905847**		<0.02	<0.02	0.04	<0.02	0.09	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**17 Jun 2019**	**0967_SW060_190617**	**Normal**	**EP1905846**		<0.02	<0.02	0.04	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**07 Nov 2019**	**0967_SW060_191107**	**Normal**	**EP1911618**		<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**30 Jun 2020**	**0967_SW060_200630**	**Normal**	**EP2006828**		<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.1

Table 4 - offsite surface water analytical results

PFAS OMP
RAAF Base Pearce

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids					
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR - Limit of Reporting							0.0005	0.0005	0.0005	0.0005	0.0003	0.0005	0.002	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0005	0.001
PFAS NEMP 2020 Drinking Water																	*0.56*												
PFAS NEMP 2020 Freshwater 95%											0.13						220												
PFAS NEMP 2020 Recreational Water																	**10**												
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																								
West Bullsbrook	**SW060**	**01 Jun 2021**	**0967_SW060_210601**	**Normal**	**EP2106150**		<0.02	<0.02	0.05	<0.02	0.05	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**10 Aug 2021**	**0967_SW060_210810**	**Normal**	**EP2109323**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**24 Aug 2021**	**0967_SW060_210824**	**Normal**	**EP2109842**		<0.02	<0.02	0.05	<0.02	0.04	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**07 Sep 2021**	**0967_SW060_210907**	**Normal**	**EP2110445**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**21 Jun 2022**	**0967_SW060_220621**	**Normal**	**EP2207730**		<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**22 Jun 2022**	**0967_SW060_220622**	**Normal**	**EP2207734**		<0.02	<0.02	0.04	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**23 Jun 2022**	**0967_SW060_220623**	**Normal**	**EP2207824**		<0.02	<0.02	0.04	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**24 Jun 2022**	**0967_SW060_220624**	**Normal**	**EP2207891**		<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**25 Jun 2022**	**0967_SW060_220625**	**Normal**	**EP2207911**		<0.02	<0.02	0.03	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**19 Sep 2022**	**0967_SW060_220919**	**Normal**	**EP2212080**		<0.02	<0.02	0.03	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**09 Jun 2023**	**0967_SW060_230609**	**Normal**	**EP2307634**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**10 Jun 2023**	**0967_SW060_230610**	**Normal**	**EP2307675**		<0.02	<0.02	0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**11 Jun 2023**	**0967_SW060_230611**	**Normal**	**EP2307678**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_QC120_230612**	**Field Duplicate**	**EP2307718**		<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_QC220_230612**	**Interlab Duplicate**	**999535**		<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_SW060_230612**	**Normal**	**EP2307718**		<0.02	<0.02	0.01	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**13 Jun 2023**	**0967_SW060_230613**	**Normal**	**EP2307806**		<0.02	<0.02	0.01	<0.02	0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
West Bullsbrook	**SW060**	**14 Sep 2023**	**0967_SW060_230914**	**Normal**	**EP2312711**		<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**30 Aug 2017**	**TS01**	**Normal**	**EP1709385**		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Twin Swamp Nature Reserve	**SW066**	**13 Jun 2019**	**0967_SW066_190613**	**Normal**	**EP1905805**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**04 Dec 2019**	**0967_SW066_191204**	**Normal**	**EP1912893**		<0.02	<0.02	0.12	<0.02	0.20	<0.02	<0.1	0.04	0.05	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**30 Jun 2020**	**0967_SW066_200630**	**Normal**	**EP2006825**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**01 Jul 2020**	**0967_SW066_200701**	**Normal**	**EP2006822**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**02 Jul 2020**	**0967_SW066_200702**	**Normal**	**EP2006881**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**03 Jul 2020**	**0967_SW066_200703**	**Normal**	**EP2006957**		<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**04 Jul 2020**	**0967_SW066_200704**	**Normal**	**EP2006964**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**22 Oct 2020**	**0967_SW066_201022**	**Normal**	**EP2011545**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**08 Sep 2021**	**0967_SW066_210908**	**Normal**	**EP2110529**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_QC105_220621**	**Field Duplicate**	**EP2207730**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_QC205_220621**	**Interlab Duplicate**	**901657**		<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_SW066_220621**	**Normal**	**EP2207730**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**22 Jun 2022**	**0967_SW066_220622**	**Normal**	**EP2207734**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**23 Jun 2022**	**0967_SW066_220623**	**Normal**	**EP2207824**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**24 Jun 2022**	**0967_SW066_220624**	**Normal**	**EP2207893**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**25 Jun 2022**	**0967_SW066_220625**	**Normal**	**EP2207911**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**21 Sep 2022**	**0967_SW066_220921**	**Normal**	**EP2212258**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**09 Jun 2023**	**0967_SW066_230609**	**Normal**	**EP2307634**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**10 Jun 2023**	**0967_SW066_230610**	**Normal**	**EP2307676**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**11 Jun 2023**	**0967_SW066_230611**	**Normal**	**EP2307678**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**12 Jun 2023**	**0967_SW066_230612**	**Normal**	**EP2307718**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**13 Jun 2023**	**0967_SW066_230613**	**Normal**	**EP2307806**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW066**	**18 Sep 2023**	**0967_SW066_230918**	**Normal**	**EP2312965**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**30 Aug 2017**	**TS02**	**Normal**	**EP1709385**		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_QC101_191204**	**Field Duplicate**	**EP1912893**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_QC201_191204**	**Interlab Duplicate**	**692273**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_SW067_191204**	**Normal**	**EP1912893**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**30 Jun 2020**	**0967_SW067_200630**	**Normal**	**EP2006825**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**01 Jul 2020**	**0967_SW067_200701**	**Normal**	**EP2006822**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**02 Jul 2020**	**0967_SW067_200702**	**Normal**	**EP2006881**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**03 Jul 2020**	**0967_SW067_200703**	**Normal**	**EP2006957**		<0.02	<0.02	<0.02	<0.02	0.10	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_QC103_200704**	**Field Duplicate**	**EP2006964**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_QC203_200704**	**Interlab Duplicate**	**730326**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_SW067_200704**	**Normal**	**EP2006964**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**22 Oct 2020**	**0967_SW067_201022**	**Normal**	**EP2011545**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**08 Sep 2021**	**0967_SW067_210908**	**Normal**	**EP2110529**		<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**21 Sep 2022**	**0967_SW067_220921**	**Normal**	**EP2212258**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_QC103_230609**	**Field Duplicate**	**EP2307634**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_QC203_230609**	**Interlab Duplicate**	**999535**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05	<0.05
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_SW067_230609**	**Normal**	**EP2307634**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05
Twin Swamp Nature Reserve	**SW067**	**18 Sep 2023**	**0967_SW067_230918**	**Normal**	**EP2312965**		<0.02	<0.02	<0.01	<0.02	<0.01	<0.02	<0.1	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ellen Brook	**SW021**	**21 Sep 2016**	**RE_SW01**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0053	0.0064	0.0064													
Ellen Brook	**SW021**	**24 Aug 2017**	**RE_SW01**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.003	0.005	0.008	<1	62	<1	62			492			27	41	14	237
Ellen Brook	**SW021**	**08 Mar 2019**	**0967_SW021_190308**	**Normal**	**EP1902156**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW021**	**22 Oct 2019**	**0967_SW021_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	69	<1	69	24.2	24.3	772	0.07	52	28	66	17	391
Ellen Brook	**SW021**	**06 May 2020**	**0967_QC102_200506**	**Field Duplicate**	**EP2004584**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.18	0.18	177	165	<1	341	328	339	10,800	1.67	797	343	1,120	94	5,230
Ellen Brook	**SW021**	**06 May 2020**	**0967_QC202_200506**	**Interlab Duplicate**	**718239**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.09*	0.21	0.24	<10	45	<20	45			11,000						
Ellen Brook	**SW021**	**06 May 2020**	**0967_SW021_200506**	**Normal**	**EP2004584**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.14	0.14	170	168	<1	338	331	338	10,900	1.05	793	340	1,110	93	5,220
Ellen Brook	**SW021**	**12 Oct 2020**	**0967_SW021_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	53	<1	53	21.7	22.4	689	1.62	59	25	62	15	361
Ellen Brook	**SW021**	**09 Aug 2021**	**0967_SW021_210809**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW021**	**25 Aug 2021**	**0967_SW021_210825**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_QC102_210906**	**Field Duplicate**	**EP2110383**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	62	<1	62	18.1	16.9	548	3.42	68	30	44	14	263
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_QC202_210906**	**Interlab Duplicate**	**822875**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
Ellen Brook	**SW021**	**06 Sep 2021**	**0967_SW021_210906**	**Normal**	**EP2110383**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	61	18.2	17.3	550	2.61	70	31	45	14	268
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_QC106_220419**	**Field Duplicate**	**EP2204504**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.14	0.14	39	428	<1	467	277	288	9,010	1.94	657	321	921	92	4,460
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_QC206_220419**	**Interlab Duplicate**	**882564**	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1													
Ellen Brook	**SW021**	**19 Apr 2022**	**0967_SW021_220419**	**Normal**	**EP2204504**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.19	0.19	75	395	<1	470	277	276	9,010	0.14	652	311	880	87	4,280
Ellen Brook	**SW021**	**19 Sep 2022**	**0967_SW021_220919**	**Normal**	**EP2212055**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	67	<1	67	14.2	12.6	429	6.12	38	24	33	11	193
Ellen Brook	**SW021**	**12 Apr 2023**	**0967_SW021_230412**	**Normal**	**EP2304604**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.08	0.08	70	602	<1	672	284	314	9,170	4.97	585	406	927	68	4,960
Ellen Brook	**SW021**	**14 Sep 2023**	**0967_SW021_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	49	<1	49	20.1	17.2	634	7.73	60	28	48	12	266
Ellen Brook	**SW022**	**20 Sep 2016**	**RE_SW02**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*1.347*	1.43	1.48													
Ellen Brook	**SW022**	**20 Sep 2016**	**SW_FD03**	**Field Duplicate**	**EP1608799**						*1.5*	1.71														
Ellen Brook	**SW022**	**20 Sep 2016**	**SW_FS03**	**Interlab Duplicate**	**186091**						*0.54*															
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_QC111_190613**	**Field Duplicate**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.30	1.32													
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_QC211_190613**	**Interlab Duplicate**	**228248**	<0.02	<0.05	<0.1	<0.02	<0.5	*0.72*		1.5													
Ellen Brook	**SW022**	**13 Jun 2019**	**0967_SW022_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.91*	1.53	1.56													
Ellen Brook	**SW022**	**14 Jun 2019**	**0967_SW022_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.81*	1.78	1.81													
Ellen Brook	**SW022**	**15 Jun 2019**	**0967_SW022_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.18*	2.10	2.12													
Ellen Brook	**SW022**	**16 Jun 2019**	**0967_SW022_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.58*	2.49	2.55													
Ellen Brook	**SW022**	**17 Jun 2019**	**0967_SW022_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.27*	2.31	2.38													
Ellen Brook	**SW022**	**30 Oct 2019**	**0967_SW022_191030**	**Normal**	**EP1911234**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.16***	6.91	7.22	<1	168	<1	168	13.7	13.2	366	1.89	<1	47	19	<1	213
Ellen Brook	**SW022**	**13 May 2020**	**0967_QC103_200513**	**Field Duplicate**	**EP2004874**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.77*	3.84	3.89	<1	78	<1	78	6.82	6.25	174	4.37	17	22	8	9	98
Ellen Brook	**SW022**	**13 May 2020**	**0967_QC203_200513**	**Interlab Duplicate**	**719471**	<0.05	<0.05	<0.05	<0.05	<0.05	*1.49*	2.85	2.93	<20	85	<20	85			160						
Ellen Brook	**SW022**	**13 May 2020**	**0967_SW022_200513**	**Normal**	**EP2004874**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.70*	3.61	3.68	<1	80	<1	80	6.94	6.29	176	4.88	18	22	8	9	99
Ellen Brook	**SW022**	**30 Jun 2020**	**0967_SW022_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.95*	1.25	1.29	<1	61	<1	61	4.42	4.33	92	0.99	29	23	7	5	57
Ellen Brook	**SW022**	**01 Jul 2020**	**0967_SW022_200701**	**Normal**	**EP2006833**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.83*	1.15	1.19	<1	52	<1	52	3.55	3.44	72	1.55	23	19	6	5	43
Ellen Brook	**SW022**	**02 Jul 2020**	**0967_SW022_200702**	**Normal**	**EP2006908**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.86*	1.13	1.17	<1	51	<1	51	3.38	3.32	69	0.90	20	18	6	4	42
Ellen Brook	**SW022**	**03 Jul 2020**	**0967_SW022_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.92*	1.36	1.41	<1	56	<1	56	4.11	4.09	89	0.17	23	20	7	5	55
Ellen Brook	**SW022**	**04 Jul 2020**	**0967_SW022_200704**	**Normal**	**EP2006971**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.15***	3.34	3.48	<1	37	<1	37	2.12	2.25	41		11	13	3	2	30
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_QC104_201012**	**Field Duplicate**	**EP2011011**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.07***	4.54	4.74	<1	202	<1	202	10.5	8.63	211	9.81	25	36	13	6	129
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_QC204_201012**	**Interlab Duplicate**	**750345**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.5***	3.89	4.09	<10	130	<20	130			180						
Ellen Brook	**SW022**	**12 Oct 2020**	**0967_SW022_201012**	**Normal**	**EP2011011**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.31***	4.85	5.06	<1	137	<1	137	9.27	9.02	213	1.32	25	37	14	6	135
Ellen Brook	**SW022**	**19 Apr 2021**	**0967_QC105_210419**	**Field Duplicate**	**EP2104215**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.06***	5.00	5.14	<1	139	<1	139	19.4	16.6	560	7.66	40	44	23	13	281
Ellen Brook	**SW022**	**19 Apr 2021**	**0967_SW022_210419**	**Normal**	**EP2104215**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.31***	5.66	5.81	<1	138	<1	138	19.5	16.2	562	9.09	41	43	23	12	273
Ellen Brook	**SW022**	**31 May 2021**	**0967_SW022_210531**	**Normal**	**EP2106116**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.88	0.90	<1	43	<1	43	3.83	3.77	92	0.81	18	13	6	4	58
Ellen Brook	**SW022**	**01 Jun 2021**	**0967_SW022_210601**	**Normal**	**EP2106134**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.57*	0.78	0.80	<1	42	<1	42	10.9	9.41	325	7.42	44	21	22	8	146
Ellen Brook	**SW022**	**02 Jun 2021**	**0967_SW022_210602**	**Normal**	**EP2106195**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.65*	0.91	0.94	<1	50	<1	50	7.54	6.72	206	5.77	35	19	14	7	102
Ellen Brook	**SW022**	**03 Jun 2021**	**0967_SW022_210603**	**Normal**	**EP2106262**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.50	0.50	<1	46	<1	46	16.3	14.7	491	5.03	74	27	37	12	231
Ellen Brook	**SW022**	**04 Jun 2021**	**0967_SW022_210604**	**Normal**	**EP2106323**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17	<1	40	<1	40	23.8	22.2	740	3.58	102	31	60	19	349
Ellen Brook	**SW022**	**09 Aug 2021**	**0967_SW022_210809**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.55	0.57													
Ellen Brook	**SW022**	**24 Aug 2021**	**0967_SW022_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.75*	0.98	1.02													
Ellen Brook	**SW022**	**06 Sep 2021**	**0967_SW022_210906**	**Normal**	**EP2110383**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	61	18.0	17.6	545	1.06	67	31	46	14	274
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_QC111_220420**	**Field Duplicate**	**EP2204599**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.99*	21.8	22.0	<1	68	<1	68	48.1	51.4	1,370	3.28	391	170	122	34	736
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_QC211_220420**	**Interlab Duplicate**	**882820**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.4***	19.59	19.97													
Ellen Brook	**SW022**	**20 Apr 2022**	**0967_SW022_220420**	**Normal**	**EP2204599**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.01***	23.2	23.4	<1	68	<1	68	47.4	53.4	1,340	6.01	394	174	127	36	767
Ellen Brook	**SW022**	**21 Jun 2022**	**0967_SW022_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.49	1.53	<1	89	<1	89	5.63	5.30	113	2.99	32	28	8	8	70
Ellen Brook	**SW022**	**22 Jun 2022**	**0967_SW022_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.98*	2.02	2.09	<1	98	<1	98	7.14	6.86	155	2.02	39	36	12	8	89
Ellen Brook	**SW022**	**23 Jun 2022**	**0967_SW022_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.98*	2.23	2.28	<1	103	<1	103	8.17	7.55	185	3.94	43	37	14	8	100
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_QC117_220624**	**Field Duplicate**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.34*	2.29	2.33	<1	81	<1	81	4.32	4.19	78	1.56	24	24	6	4	55
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_QC217_220624**	**Interlab Duplicate**	**902459**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.82*	1.79	1.84													
Ellen Brook	**SW022**	**24 Jun 2022**	**0967_SW022_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.37*	2.42	2.46	<1	81	<1	81	4.35	4.59	79	2.69	24	29	7	5	56
Ellen Brook	**SW022**	**25 Jun 2022**	**0967_SW022_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	1.62	1.66	<1	88	<1	88	5.27	4.84	104	4.28	28	26	8	4	64
Ellen Brook	**SW022**	**22 Sep 2022**	**0967_SW022_220922**	**Normal**	**EP2212311**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.79*	6.41	6.43	<1	74	<1	74	4.69	4.54	96	1.56	24	18	7	6	67
Ellen Brook	**SW022**	**12 Apr 2023**	**0967_SW022_230412**	**Normal**	**EP2304597**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.65*	7.42	7.57	<1	144	<1	144	42.6	43.4	1,180	0.93	312	116	97	28	666
Ellen Brook	**SW022**	**09 Jun 2023**	**0967_SW022_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.61*	1.31	1.33	<1	62	<1	62	4.88	4.38	115	5.38	19	15	8	4	66
Ellen Brook	**SW022**	**10 Jun 2023**	**0967_SW022_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	1.22	1.25	<1	80	<1	80	10.3	11.5	272	5.75	49	39	22	7	175
Ellen Brook	**SW022**	**11 Jun 2023**	**0967_SW022_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.96*	2.14	2.18	<1	82	<1	82	5.59	5.61	118	0.18	30	20	8	5	88
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_QC116_230612**	**Field Duplicate**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.29	1.32	<1	82	<1	82	7.11	8.02	166	6.01	38	32	17	6	112
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_QC216_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.81*	1.38	1.42													
Ellen Brook	**SW022**	**12 Jun 2023**	**0967_SW022_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.73*	1.32	1.35	<1	82	<1	82	7.14	7.80	167	4.43	38	31	16	6	110
Ellen Brook	**SW022**	**13 Jun 2023**	**0967_SW022_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.71*	1.33	1.37	<1	92	<1	92	8.96	9.79	220	4.42	44	36	22	7	138
Ellen Brook	**SW022**	**19 Sep 2023**	**0967_SW022_230919**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.02*	1.81	1.86	<1	116	<1	116	10.9	9.66	281	5.86	30	35	23	6	135
Ellen Brook	**SW024**	**20 Sep 2016**	**RE_SW04**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0362	0.0401	0.042													
Ellen Brook	**SW024**	**19 Nov 2019**	**0967_SW024_191119**	**Normal**	**EP1912126**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.31	0.31	<1	148	<1	148	27.5	23.0	831	8.78	51	36	65	24	351
Ellen Brook	**SW024**	**14 Oct 2020**	**0967_SW024_201014**	**Normal**	**EP2011183**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.08***	3.00	3.29	<1	246	<1	246	68.6	68.0	2,110	0.40	200	228	211	30	886
Ellen Brook	**SW024**	**07 Sep 2021**	**0967_SW024_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	63	<1	63	18.3	14.8	549	10.5	74	26	39	12	230
Ellen Brook	**SW024**	**23 Sep 2022**	**0967_SW024_220923**	**Normal**	**EP2212363**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	64	<1	64	14.5	13.0	440	5.22	37	25	34	11	200
Ellen Brook	**SW024**	**15 Sep 2023**	**0967_SW024_230915**	**Normal**	**EP2312794**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	51	<1	51	17.1	15.2	540	5.81	40	23	41	13	238
Ellen Brook	**SW025**	**20 Sep 2016**	**RE_SW05**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	***4.46***	4.58	4.7													
Ellen Brook	**SW025**	**13 Jun 2019**	**0967_SW025_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16													
Ellen Brook	**SW025**	**14 Jun 2019**	**0967_SW025_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.12	0.12													
Ellen Brook	**SW025**	**15 Jun 2019**	**0967_SW025_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.29*	0.35	0.35													
Ellen Brook	**SW025**	**16 Jun 2019**	**0967_SW025_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11													
Ellen Brook	**SW025**	**17 Jun 2019**	**0967_QC130_190617**	**Field Duplicate**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.17	0.17													

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ellen Brook	**SW025**	**10 Jun 2019**	**0967_QC230_190617**	**Interlab Duplicate**	**228323**	<0.02	<0.05	<0.1	<0.02	<0.5	*0.15*		0.23													
Ellen Brook	**SW025**	**17 Jun 2019**	**0967_SW025_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14													
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_QC102_191025**	**Field Duplicate**	**EP1911009**	<0.02	<0.05	<0.05	<0.02	<0.05	***8.68***	9.46	9.82	<1	84	<1	84	3.04	2.90	40	2.23	11	8	4	<1	50
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_QC202_191025**	**Interlab Duplicate**	**685044**	<0.05	<0.05	<0.05	<0.05	<0.05	***7.8***	8.35	8.75	<10	87					39						
Ellen Brook	**SW025**	**25 Oct 2019**	**0967_SW025_191025**	**Normal**	**EP1911009**	<0.02	<0.05	<0.05	<0.02	<0.05	***8.54***	9.32	9.68	<1	84	<1	84	3.04	2.68	40	6.12	11	8	4	<1	45
Ellen Brook	**SW025**	**30 Jun 2020**	**0967_SW025_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.67***	4.21	4.38	<1	29	<1	29	1.83	1.92	37	2.27	10	11	3	3	24
Ellen Brook	**SW025**	**01 Jul 2020**	**0967_SW025_200701**	**Normal**	**EP2006833**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.68*	1.79	1.86	<1	24	<1	24	1.44	1.74	34		<10	10	3	3	21
Ellen Brook	**SW025**	**02 Jul 2020**	**0967_SW025_200702**	**Normal**	**EP2006908**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.63***	2.93	3.06	<1	32	<1	32	2.00	2.09	41	2.11	10	11	3	3	28
Ellen Brook	**SW025**	**03 Jul 2020**	**0967_SW025_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.89***	3.14	3.27	<1	34	<1	34	2.15	2.23	44		11	12	3	3	30
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_QC101_200704**	**Field Duplicate**	**EP2006971**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.79***	2.94	3.04	<1	37	<1	37	2.12	2.30	41		11	13	3	2	31
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_QC201_200704**	**Interlab Duplicate**	**730326**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.57***	2.7	2.78	<10	49					41						
Ellen Brook	**SW025**	**04 Jul 2020**	**0967_SW025_200704**	**Normal**	**EP2006971**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.06*	1.64	1.70	<1	64	<1	64	4.83	4.82	106	0.14	27	25	8	5	64
Ellen Brook	**SW025**	**12 Oct 2020**	**0967_SW025_201012**	**Normal**	**EP2011011**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.97*	2.27	2.45	<1	67	<1	67	2.56	2.72	33	3.11	14	13	4	2	39
Ellen Brook	**SW025**	**31 May 2021**	**0967_SW025_210531**	**Normal**	**EP2106116**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.91***	3.03	3.12	<1	36	<1	36	1.62	1.58	24	1.26	11	10	2	2	20
Ellen Brook	**SW025**	**01 Jun 2021**	**0967_SW025_210601**	**Normal**	**EP2106134**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.93***	3.04	3.14	<1	40	<1	40	1.71	1.80	25	2.60	10	11	3	2	22
Ellen Brook	**SW025**	**02 Jun 2021**	**0967_SW025_210602**	**Normal**	**EP2106195**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.21***	3.34	3.45	<1	45	<1	45	1.88	1.93	26	1.36	12	11	3	2	25
Ellen Brook	**SW025**	**03 Jun 2021**	**0967_SW025_210603**	**Normal**	**EP2106262**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.72***	3.84	3.96	<1	49	<1	49	2.02	2.11	28	2.32	12	12	3	2	28
Ellen Brook	**SW025**	**04 Jun 2021**	**0967_SW025_210604**	**Normal**	**EP2106323**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.89***	4.02	4.15	<1	52	<1	52	2.11	2.09	29	0.39	12	11	3	3	28
Ellen Brook	**SW025**	**09 Sep 2021**	**0967_SW025_210909**	**Normal**	**EP2110628**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.89***	5.19	5.38	<1	58	<1	58	2.81	2.62	49	3.42	13	11	4	2	39
Ellen Brook	**SW025**	**21 Jun 2022**	**0967_SW025_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.73***	2.97	3.08	<1	34	<1	34	1.75	1.62	32	3.96	8	8	2	2	23
Ellen Brook	**SW025**	**22 Jun 2022**	**0967_SW025_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.79***	3.98	4.09	<1	20	<1	20	1.51	1.75	32	7.41	10	9	2	2	25
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_QC112_220623**	**Field Duplicate**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.52***	3.80	3.93	<1	37	<1	37	1.91	1.88	34	0.75	10	9	3	2	26
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_QC212_220623**	**Interlab Duplicate**	**902466**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.9***	3.14	3.28													
Ellen Brook	**SW025**	**23 Jun 2022**	**0967_SW025_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.47***	3.74	3.87	<1	35	<1	35	1.86	1.97	33	2.93	11	10	3	2	27
Ellen Brook	**SW025**	**24 Jun 2022**	**0967_SW025_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	***5.78***	6.07	6.22	<1	37	<1	37	1.83	1.69	32	3.97	9	10	2	1	23
Ellen Brook	**SW025**	**25 Jun 2022**	**0967_SW025_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.55***	3.72	3.83	<1	41	<1	41	1.92	1.73	31	5.18	11	10	2	1	24
Ellen Brook	**SW025**	**20 Sep 2022**	**0967_SW025_220920**	**Normal**	**EP2212154**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.19***	4.35	4.47	<1	41	<1	39	1.92	1.65	33	7.44	10	7	2	2	25
Ellen Brook	**SW025**	**09 Jun 2023**	**0967_SW025_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.19***	2.30	2.37	<1	33	<1	33	1.47	1.38	23	3.13	8	6	2	2	20
Ellen Brook	**SW025**	**10 Jun 2023**	**0967_SW025_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.59***	3.71	3.80	<1	38	<1	38	1.80	1.94	28	3.79	12	12	3	2	24
Ellen Brook	**SW025**	**11 Jun 2023**	**0967_SW025_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.90*	2.00	2.06	<1	29	<1	29	1.32	1.16	22	6.38	6	5	1	2	18
Ellen Brook	**SW025**	**12 Jun 2023**	**0967_SW025_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.84***	2.95	3.04	<1	40	<1	40	1.74	1.89	26	4.13	10	11	3	2	24
Ellen Brook	**SW025**	**13 Jun 2023**	**0967_SW025_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.98***	3.11	3.21	<1	42	<1	42	1.85	2.07	27	5.63	12	12	3	2	27
Ellen Brook	**SW025**	**13 Sep 2023**	**0967_SW025_230913**	**Normal**	**EP2312634**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.06*	1.10	1.10	<1	12	<1	12	0.52	0.54	10	1.93	<5	2	<1	2	9
Ellen Brook	**SW026**	**20 Sep 2016**	**RE_SW06**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	0.0377	0.0412	0.0434													
Ellen Brook	**SW026**	**23 Aug 2017**	**RE_SW06**	**Normal**	**EP1709134**	<0.002	<0.005	<0.005	<0.002	<0.005	0.034	0.028	0.045	<1	62	<1	62			450			27	35	12	202
Ellen Brook	**SW026**	**07 Nov 2019**	**0967_SW026_191107**	**Normal**	**EP1911618**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	163	<1	163	6.44	6.90	113	3.41	<20	57	12	6	67
Ellen Brook	**SW026**	**22 Oct 2020**	**0967_SW026_201022**	**Normal**	**EP2011560**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.15	0.15	<1	75	<1	75	21.5	21.4	667	0.25	59	30	60	15	336
Ellen Brook	**SW026**	**07 Sep 2021**	**0967_SW026_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	62	<1	62	18.1	14.7	542	10.2	74	26	39	12	228
Ellen Brook	**SW026**	**23 Sep 2022**	**0967_SW026_220923**	**Normal**	**EP2212363**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	64	<1	64	15.8	13.3	487	8.43	37	26	35	11	204
Ellen Brook	**SW026**	**14 Sep 2023**	**0967_SW026_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	66	<1	66	13.6	11.9	405	6.94	43	32	31	11	171
Ellen Brook	**SW028**	**20 Sep 2016**	**RE_SW08**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*1.02*	1.08	1.12													
Ellen Brook	**SW028**	**13 Jun 2019**	**0967_SW028_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.18	0.18													
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_QC118_190614**	**Field Duplicate**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.16	0.16													
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_QC218_190614**	**Interlab Duplicate**	**228247**	<0.02	<0.05	<0.1	<0.02	<0.5	*0.12*		0.18													
Ellen Brook	**SW028**	**14 Jun 2019**	**0967_SW028_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.13	0.13													
Ellen Brook	**SW028**	**15 Jun 2019**	**0967_SW028_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.52	0.52													
Ellen Brook	**SW028**	**16 Jun 2019**	**0967_SW028_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15													
Ellen Brook	**SW028**	**17 Jun 2019**	**0967_SW028_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.21	0.21													
Ellen Brook	**SW028**	**30 Jun 2020**	**0967_SW028_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.49*	0.52	0.52	<1	42	<1	42	1.79	1.85	27	1.74	9	10	4	6	20
Ellen Brook	**SW028**	**02 Jul 2020**	**0967_SW028_200702**	**Normal**	**EP2006908**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.50	0.50	<1	67	<1	67	13.5	11.5	382	7.83	65	31	33	13	159
Ellen Brook	**SW028**	**03 Jul 2020**	**0967_SW028_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.30*	0.34	0.34	<1	70	<1	70	13.6	11.4	386	8.46	61	29	32	14	161
Ellen Brook	**SW028**	**04 Jul 2020**	**0967_SW028_200704**	**Normal**	**EP2006971**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.33*	0.44	0.44	<1	74	<1	74	13.7	12.3	387	5.59	64	34	36	12	168
Ellen Brook	**SW028**	**09 Sep 2021**	**0967_SW028_210909**	**Normal**	**EP2110595**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.04*	1.14	1.17	<1	57	<1	57	2.40	2.34	41	1.22	5	13	4	4	29
Ellen Brook	**SW028**	**21 Jun 2022**	**0967_SW028_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.40*	0.61	0.65	<1	35	<1	35	3.46	3.84	98	5.22	<10	9	8	5	60
Ellen Brook	**SW028**	**22 Jun 2022**	**0967_SW028_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.42*	0.47	0.47	<1	40	<1	40	3.90	4.22	110	3.94	<1	11	10	6	62
Ellen Brook	**SW028**	**23 Jun 2022**	**0967_SW028_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.47*	0.54	0.56	<1	46	<1	46	3.80	4.26	102	5.82	<10	11	10	6	63
Ellen Brook	**SW028**	**24 Jun 2022**	**0967_SW028_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.65*	0.68	0.70	<1	53	<1	53	3.26	3.57	78	4.55	<10	10	7	4	55
Ellen Brook	**SW028**	**25 Jun 2022**	**0967_SW028_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.44*	0.50	0.58	<1	57	<1	57	3.00	3.23	66	3.71	<20	8	6	3	52
Ellen Brook	**SW028**	**20 Sep 2022**	**0967_SW028_220920**	**Normal**	**EP2212154**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.91*	0.97	0.99	<1	48	<1	46	1.71	1.56	28	4.53	<1	7	3	2	21
Ellen Brook	**SW028**	**09 Jun 2023**	**0967_SW028_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.44	0.44	<1	14	<1	14	12.2	12.2	373	0.20	68	26	35	8	179
Ellen Brook	**SW028**	**11 Jun 2023**	**0967_SW028_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.69*	0.75	0.75	<1	42	<1	42	1.25	1.08	14	7.25	1	6	1	2	15
Ellen Brook	**SW028**	**12 Jun 2023**	**0967_SW028_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.40*	0.45	0.48	<1	16	<1	16	18.0	19.7	556	4.46	98	43	58	11	288
Ellen Brook	**SW028**	**13 Jun 2023**	**0967_SW028_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.38*	0.44	0.46	<1	14	<1	14	19.8	22.5	612	6.48	106	48	66	12	330
Ellen Brook	**SW028**	**19 Sep 2023**	**0967_SW028_230919**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.21	0.21	<1	57	<1	57	16.5	14.9	518	4.96	35	34	41	11	220
Ellen Brook	**SW029**	**20 Sep 2016**	**RE_SW09**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.379*	0.417	0.443													
Ellen Brook	**SW029**	**23 Aug 2017**	**RE_SW09**	**Normal**	**EP1709134**	<0.002	<0.005	<0.005	<0.002	<0.005	0.03	0.033	0.043	<1	67	<1	67			432			28	33	12	193
Ellen Brook	**SW029**	**30 Oct 2019**	**0967_SW029_191030**	**Normal**	**EP1911186**	<0.05	<0.12	<0.12	<0.05	<0.12	*0.74*	0.79	0.84	<1	110	<1	110	32.1	34.0	1,030	2.91	40	54	86	14	549
Ellen Brook	**SW029**	**09 Sep 2021**	**0967_SW029_210909**	**Normal**	**EP2110595**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.44*	0.52	0.55	<1	105	<1	105	15.2	13.8	465	5.01	<20	35	39	11	196
Ellen Brook	**SW029**	**20 Sep 2022**	**0967_SW029_220920**	**Normal**	**EP2212154**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.68	0.70	<1	79	<1	75	8.01	7.08	231	6.16	<5	14	16	6	113
Ellen Brook	**SW029**	**19 Sep 2023**	**0967_SW029_230919**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.26*	0.29	0.29	<1	57	<1	57	14.4	12.0	455	9.06	23	33	34	10	169
Ki-it Monger Brook	**SW032**	**21 Sep 2016**	**RK_SW12**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.505*	0.536	0.553													
Ki-it Monger Brook	**SW032**	**22 Aug 2017**	**RK_SW12**	**Normal**	**EP1709097**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.202*	0.128	0.26	<1	56	<1	56			215			19	18	5	115
Ki-it Monger Brook	**SW032**	**13 Jun 2019**	**0967_SW032_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.44*	1.58	1.65													
Ki-it Monger Brook	**SW032**	**14 Jun 2019**	**0967_QC117_190614**	**Field Duplicate**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.34*	1.54	1.61													
Ki-it Monger Brook	**SW032**	**14 Jun 2019**	**0967_QC217_190614**	**Interlab Duplicate**	**228247**	<0.02	<0.05	<0.1	<0.02	<0.5	*1.5*		1.8													
Ki-it Monger Brook	**SW032**	**14 Jun 2019**	**0967_SW032_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.37*	1.57	1.65													
Ki-it Monger Brook	**SW032**	**15 Jun 2019**	**0967_SW032_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.50*	1.69	1.76													
Ki-it Monger Brook	**SW032**	**16 Jun 2019**	**0967_SW032_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.90***	3.20	3.32													
Ki-it Monger Brook	**SW032**	**17 Jun 2019**	**0967_SW032_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.78*	2.03	2.13													
Ki-it Monger Brook	**SW032**	**30 Oct 2019**	**0967_SW032_191030**	**Normal**	**EP1911234**	<0.02	<0.05	<0.05	<0.02	<0.05	***5.91***	6.18	6.31	3	182	<1	184	9.62	9.06	205	3.02	8	33	10	6	148
Ki-it Monger Brook	**SW032**	**06 May 2020**	**0967_SW032_200506**	**Normal**	**EP2004584**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.56*	1.83	1.92	<1	68	<1	68	3.59	3.88	68	3.89	15	17	4	7	58
Ki-it Monger Brook	**SW032**	**30 Jun 2020**	**0967_SW032_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.19*	1.33	1.38	<1	66	<1	66	3.87	3.95	72	1.06	25	19	8	5	51
Ki-it Monger Brook	**SW032**	**01 Jul 2020**	**0967_SW032_200701**	**Normal**	**EP2006833**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.01*	1.18	1.22	<1	65	<1	65	4.36	4.34	84	0.11	33	22	8	6	56
Ki-it Monger Brook	**SW032**	**02 Jul 2020**	**0967_SW032_200702**	**Normal**	**EP2006908**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.11*	1.29	1.32	<1	71	<1	71	4.01	4.00	72	0.19	27	19	8	5	52
Ki-it Monger Brook	**SW032**	**03 Jul 2020**	**0967_SW032_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.36*	1.57	1.65	<1	80	<1	80	4.15	4.05	72	1.27	25	20	8	5	52

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ki-it Monger Brook	**SW032**	**12 Jun 2023**	**0967_SW032_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.75	0.77	<1	86	<1	86	4.25	4.45	69	2.32	28	18	6	9	65
Ki-it Monger Brook	**SW032**	**13 Jun 2023**	**0967_SW032_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.94*	1.08	1.12	<1	101	<1	101	4.12	4.43	56	3.61	25	20	6	11	61
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_QC103_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.61*	0.66	0.66	<1	112	<1	112	7.08	6.31	157	5.76	20	23	13	7	90
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_QC203_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.77*	0.84	0.86													
Ki-it Monger Brook	**SW032**	**11 Sep 2023**	**0967_SW032_230911**	**Normal**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.66*	0.71	0.71	<1	112	<1	112	7.17	6.49	157	4.92	24	25	14	7	90
Ki-it Monger Brook	**SW034**	**21 Sep 2016**	**RK_SW14**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	***11.26***	12.4	12.8													
Ki-it Monger Brook	**SW034**	**13 Jun 2019**	**0967_SW034_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.12*	1.27	1.32													
Ki-it Monger Brook	**SW034**	**14 Jun 2019**	**0967_SW034_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.25*	1.40	1.47													
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_QC120_190615**	**Field Duplicate**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.46***	2.81	2.92													
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_QC220_190615**	**Interlab Duplicate**	**228322**	<0.02	<0.05	<0.1	<0.02	<0.5	*1.1*		1.4													
Ki-it Monger Brook	**SW034**	**15 Jun 2019**	**0967_SW034_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.49*	1.67	1.72													
Ki-it Monger Brook	**SW034**	**16 Jun 2019**	**0967_SW034_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.73*	1.98	2.07													
Ki-it Monger Brook	**SW034**	**17 Jun 2019**	**0967_SW034_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.75*	2.00	2.09													
Ki-it Monger Brook	**SW034**	**30 Oct 2019**	**0967_SW034_191030**	**Normal**	**EP1911234**	<0.02	<0.05	<0.05	<0.02	<0.05	***6.37***	6.82	7.07	<1	183	<1	183	4.70	4.57	37	1.40	<2	27	10	2	54
Ki-it Monger Brook	**SW034**	**07 May 2020**	**0967_SW034_200507**	**Normal**	**EP2004666**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.25***	2.52	2.63	<1	45	<1	45	3.65	3.92	68	3.50	40	14	7	8	56
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_QC101_200630**	**Field Duplicate**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.26***	2.37	2.45	<1	35	<1	35	2.44	2.45	53	0.18	12	14	4	3	31
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_QC201_200630**	**Interlab Duplicate**	**729574**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.01***	2.12	2.18	<10	39					430						
Ki-it Monger Brook	**SW034**	**30 Jun 2020**	**0967_SW034_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.11***	2.21	2.27	<1	43	<1	43	2.56	2.41	52	2.93	11	14	4	3	30
Ki-it Monger Brook	**SW034**	**01 Jul 2020**	**0967_SW034_200701**	**Normal**	**EP2006833**	<0.02	<0.05	<0.05	<0.02	<0.05	***22.5***	25.2	26.0	<1	68	<1	68	2.60	2.55	36	0.95	11	19	4	4	27
Ki-it Monger Brook	**SW034**	**02 Jul 2020**	**0967_SW034_200702**	**Normal**	**EP2006908**	<0.02	<0.05	<0.05	<0.02	<0.05	***19.0***	22.5	23.7	<1	77	<1	77	2.94	2.91	41	0.59	12	21	5	4	31
Ki-it Monger Brook	**SW034**	**03 Jul 2020**	**0967_SW034_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	***14.0***	17.1	18.0	<1	90	<1	90	3.20	3.10	41	1.60	12	24	5	4	32
Ki-it Monger Brook	**SW034**	**04 Jul 2020**	**0967_SW034_200704**	**Normal**	**EP2006971**	<0.02	<0.05	<0.05	<0.02	<0.05	***9.96***	12.0	12.7	<1	107	<1	107	3.51	3.45	39	0.80	13	29	6	3	33
Ki-it Monger Brook	**SW034**	**22 Oct 2020**	**0967_SW034_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	***5.00***	5.35	5.54	<1	178	<1	178	4.76	5.39	36	6.24	9	40	10	2	58
Ki-it Monger Brook	**SW034**	**31 May 2021**	**0967_SW034_210531**	**Normal**	**EP2106116**	<0.02	<0.05	<0.05	<0.02	<0.05	***9.71***	11.9	12.5	<1	78	<1	78	2.36	2.37	18	0.19	14	19	3	5	24
Ki-it Monger Brook	**SW034**	**01 Jun 2021**	**0967_SW034_210601**	**Normal**	**EP2106134**	<0.02	<0.05	<0.05	<0.02	<0.05	***10.9***	12.7	13.2	<1	96	<1	96	2.79	2.83	20	0.61	15	24	4	5	27
Ki-it Monger Brook	**SW034**	**02 Jun 2021**	**0967_SW034_210602**	**Normal**	**EP2106195**	<0.02	<0.05	<0.05	<0.02	<0.05	***8.01***	9.35	9.71	<1	117	<1	117	3.21	3.25	19	0.64	16	29	5	5	29
Ki-it Monger Brook	**SW034**	**03 Jun 2021**	**0967_SW034_210603**	**Normal**	**EP2106262**	<0.02	<0.05	<0.05	<0.02	<0.05	***5.61***	6.51	6.81	<1	126	<1	126	3.36	3.67	19	4.28	15	34	6	5	31
Ki-it Monger Brook	**SW034**	**04 Jun 2021**	**0967_SW034_210604**	**Normal**	**EP2106323**	<0.02	<0.05	<0.05	<0.02	<0.05	***6.95***	7.82	8.12	<1	136	<1	136	3.63	3.84	22	2.76	14	36	6	6	32
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_QC108_210907**	**Field Duplicate**	**EP2110448**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.48*	0.52	0.52	<1	77	<1	77	10.7	9.66	282	5.18	59	25	24	7	144
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_QC208_210907**	**Interlab Duplicate**	**823604**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.43*	0.52	0.52													
Ki-it Monger Brook	**SW034**	**07 Sep 2021**	**0967_SW034_210907**	**Normal**	**EP2110448**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	0.55	0.55	<1	76	<1	76	10.7	9.62	282	5.25	58	24	24	7	144
Ki-it Monger Brook	**SW034**	**21 Jun 2022**	**0967_SW034_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.16*	1.32	1.35	<1	84	<1	84	5.26	4.98	101	2.74	35	26	9	6	64
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_QC107_220622**	**Field Duplicate**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.58*	1.78	1.86	<1	96	<1	96	5.13	5.34	91	1.99	31	28	10	8	67
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_QC207_220621**	**Interlab Duplicate**	**901660**	<0.2	<0.2	<0.2	<0.2	<0.2	*1.7*	1.8	1.8													
Ki-it Monger Brook	**SW034**	**22 Jun 2022**	**0967_SW034_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.54*	1.75	1.82	<1	96	<1	96	5.18	5.25	92	0.70	32	28	10	8	65
Ki-it Monger Brook	**SW034**	**23 Jun 2022**	**0967_SW034_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.91*	2.13	2.20	<1	103	<1	103	5.63	5.18	103	4.20	32	29	9	8	64
Ki-it Monger Brook	**SW034**	**24 Jun 2022**	**0967_SW034_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.13***	3.39	3.49	<1	98	<1	98	4.75	4.45	77	3.31	30	24	7	6	58
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_QC120_220625**	**Field Duplicate**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.84***	3.31	3.44	<1	99	<1	99	4.75	4.65	77	1.10	29	26	8	5	59
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_QC220_220625**	**Interlab Duplicate**	**902463**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.39***	2.72	2.83													
Ki-it Monger Brook	**SW034**	**25 Jun 2022**	**0967_SW034_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.24***	3.68	3.82	<1	99	<1	99	4.80	4.76	78	0.42	30	26	8	6	61
Ki-it Monger Brook	**SW034**	**19 Sep 2022**	**0967_SW034_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.17*	1.28	1.31	<1	94	<1	94	6.12	5.80	129	2.69	29	18	11	10	86
Ki-it Monger Brook	**SW034**	**12 Apr 2023**	**0967_SW034_230412**	**Normal**	**EP2304601**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.66*	1.87	1.93	<1	126	<1	126	7.16	6.26	119	6.76	62	16	6	19	103
Ki-it Monger Brook	**SW034**	**09 Jun 2023**	**0967_SW034_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.90*	1.03	1.05	<1	71	<1	71	4.10	3.78	78	4.07	23	18	7	5	50
Ki-it Monger Brook	**SW034**	**10 Jun 2023**	**0967_SW034_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.05	<0.02	<0.05	***9.49***	11.6	12.2	<1	76	<1	76	2.56	2.76	26	3.68	15	24	4	4	26
Ki-it Monger Brook	**SW034**	**11 Jun 2023**	**0967_SW034_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	***11.3***	13.8	14.4	<1	53	<1	53	1.52	1.26	14	9.21	3	9	1	3	15
Ki-it Monger Brook	**SW034**	**12 Jun 2023**	**0967_SW034_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	***13.0***	16.0	16.6	<1	72	<1	72	2.36	2.59	24	4.58	12	21	4	5	25
Ki-it Monger Brook	**SW034**	**13 Jun 2023**	**0967_SW034_230613**	**Normal**	**EP2307798**	<0.02	<0.05	<0.05	<0.02	<0.05	***7.88***	9.58	10.0	<1	84	<1	84	2.73	3.10	27	6.29	14	26	5	5	29
Ki-it Monger Brook	**SW034**	**11 Sep 2023**	**0967_SW034_230911**	**Normal**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.85*	2.15	2.25	<1	103	<1	103	6.57	6.00	143	4.55	23	25	12	6	83
Ki-it Monger Brook	**SW035**	**21 Sep 2016**	**RK_SW15**	**Normal**	**ES1622106**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*1.379*	1.44	1.48													
Ki-it Monger Brook	**SW035**	**22 Aug 2017**	**RK_SW15**	**Normal**	**EP1709097**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.444*	0.228	0.539	<1	58	<1	58			206			19	17	5	109
Ki-it Monger Brook	**SW035**	**30 Oct 2019**	**0967_SW035_191030**	**Normal**	**EP1911234**	<0.02	<0.05	<0.05	<0.02	<0.05	***5.08***	5.55	5.71	<1	200	<1	200	8.06	7.79	144	1.68	<2	28	18	5	110
Ki-it Monger Brook	**SW035**	**06 May 2020**	**0967_SW035_200506**	**Normal**	**EP2004584**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.68*	1.85	1.91	<1	38	<1	38	3.42	3.74	65	4.40	40	14	7	8	52
Ki-it Monger Brook	**SW035**	**22 Oct 2020**	**0967_SW035_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.63***	3.05	3.17	<1	144	<1	144	7.59	7.55	164	0.24	4	32	17	8	100
Ki-it Monger Brook	**SW035**	**07 Sep 2021**	**0967_SW035_210907**	**Normal**	**EP2110448**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.06*	1.20	1.22	<1	80	<1	80	10.3	9.32	267	4.96	56	25	23	7	138
Ki-it Monger Brook	**SW035**	**19 Sep 2022**	**0967_SW035_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.29*	1.40	1.43	<1	92	<1	92	6.14	5.76	131	3.20	29	18	11	10	85
Ki-it Monger Brook	**SW035**	**12 Apr 2023**	**0967_SW035_230412**	**Normal**	**EP2304601**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.16***	2.42	2.50	<1	118	<1	118	6.62	6.07	106	4.30	61	14	6	19	101
Ki-it Monger Brook	**SW035**	**11 Sep 2023**	**0967_SW035_230911**	**Normal**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.03***	2.40	2.51	<1	101	<1	101	6.42	5.95	140	3.85	22	24	12	6	83

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ki-it Monger Brook	**SW036**	**22 Jun 2022**	**0967_SW036_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	***1.89***	2.10	2.18	<1	90	<1	90	4.53	4.85	77	3.41	27	24	8	10	63
Ki-it Monger Brook	**SW036**	**23 Jun 2022**	**0967_SW036_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.71*	1.92	1.99	<1	95	<1	95	4.89	5.03	84	1.35	30	26	9	8	64
Ki-it Monger Brook	**SW036**	**24 Jun 2022**	**0967_SW036_220624**	**Normal**	**EP2207893**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.52*	1.72	1.78	<1	89	<1	89	4.33	4.43	72	1.15	25	25	7	5	57
Ki-it Monger Brook	**SW036**	**25 Jun 2022**	**0967_SW036_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.09***	2.36	2.45	<1	95	<1	95	4.68	4.55	78	1.42	28	24	8	5	59
Ki-it Monger Brook	**SW036**	**20 Sep 2022**	**0967_SW036_220920**	**Normal**	**EP2212158**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.38*	0.41	0.41	<1	78	<1	78	6.01	5.69	157	2.71	1	14	14	9	83
Ki-it Monger Brook	**SW036**	**09 Jun 2023**	**0967_SW036_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.02*	1.15	1.18	<1	65	<1	65	3.46	3.15	65	4.81	16	14	6	5	42
Ki-it Monger Brook	**SW036**	**10 Jun 2023**	**0967_SW036_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.18*	1.37	1.41	<1	69	<1	69	3.92	3.85	68	0.91	30	18	6	6	53
Ki-it Monger Brook	**SW036**	**11 Jun 2023**	**0967_SW036_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.22*	1.41	1.45	<1	74	<1	74	4.05	3.85	69	2.52	30	18	6	6	53
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_QC118_230612**	**Field Duplicate**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.48***	3.01	3.16	<1	65	<1	65	4.24	4.86	82	6.90	30	25	9	7	62
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_QC218_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.75***	3.2	3.36													
Ki-it Monger Brook	**SW036**	**12 Jun 2023**	**0967_SW036_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.54***	3.06	3.21	<1	65	<1	65	4.35	4.86	86	5.59	30	25	9	7	62
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_QC125_230613**	**Field Duplicate**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.67***	3.32	3.52	<1	68	<1	68	4.13	4.12	77	0.23	29	16	8	7	57
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_QC225_230613**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	***3.04***	3.67	3.87													
Ki-it Monger Brook	**SW036**	**13 Jun 2023**	**0967_SW036_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.65***	3.26	3.43	<1	68	<1	68	4.13	4.16	77	0.29	29	16	8	7	58
Ki-it Monger Brook	**SW036**	**18 Sep 2023**	**0967_SW036_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.06*	1.27	1.31	<1	91	<1	91	9.78	8.95	249	4.45	45	28	20	8	131
Ellen Brook	**SW037**	**27 Oct 2016**	**RE_SW17**	**Normal**	**EP1610241**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.763*	0.799	0.818	<1	85	<1	85			552			32	42	10	270
Ellen Brook	**SW037**	**27 Oct 2016**	**RE_SW17**	**Normal**	**EP1611527**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.763*	0.799	0.818													
Ellen Brook	**SW037**	**04 Sep 2017**	**RE_SW17**	**Normal**	**EP1709698**	<0.002	<0.005	<0.005	<0.002	<0.005	0.037	0.029	0.048	<1	71	<1	71	14.3	13.4	428	3.35		28	35	12	203
Ellen Brook	**SW037**	**04 Sep 2017**	**RE_SW17**	**Normal**	**EP1710899**	<0.002	<0.005	<0.005	<0.002	<0.005	0.037	0.029	0.048													
Ellen Brook	**SW037**	**07 Nov 2019**	**0967_SW037_191107**	**Normal**	**EP1911618**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.78*	2.14	2.25	<1	104	<1	104	12.1	10.4	325	7.83	42	20	23	8	167
Ellen Brook	**SW037**	**12 Oct 2020**	**0967_SW037_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.94*	2.17	2.23	<1	105	<1	105	6.22	6.31	138	0.75	11	18	15	7	92
Ellen Brook	**SW037**	**10 Aug 2021**	**0967_SW037_210810**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.18	0.18													
Ellen Brook	**SW037**	**24 Aug 2021**	**0967_SW037_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05													
Ellen Brook	**SW037**	**09 Sep 2021**	**0967_SW037_210909**	**Normal**	**EP2110595**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14	<1	74	<1	74	16.8	14.5	534	7.45	12	30	37	12	221
Ellen Brook	**SW037**	**20 Sep 2022**	**0967_SW037_220920**	**Normal**	**EP2212158**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.24*	0.27	0.27	<1	75	<1	75	12.7	12.0	379	3.06	26	25	30	10	184
Ellen Brook	**SW037**	**18 Sep 2023**	**0967_SW037_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.15*	1.36	1.42	<1	92	<1	92	9.88	8.48	251	7.58	46	27	19	7	124
Ellen Brook	**SW038**	**27 Oct 2016**	**RE_SW18**	**Normal**	**EP1610241**	<0.0005	<0.001	<0.001	<0.0005	<0.001	***2.86***	3	3.07	<1	127	<1	127			230			25	19	5	120
Ellen Brook	**SW038**	**27 Oct 2016**	**RE_SW18**	**Normal**	**EP1611524**	<0.0005	<0.001	<0.001	<0.0005	<0.001	***2.86***	3.00	3.07													
Ellen Brook	**SW038**	**04 Sep 2017**	**RE_SW18**	**Normal**	**EP1709698**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.071*	0.043	0.086	<1	71	<1	71	13.9	12.6	417	4.83		26	33	11	192
Ellen Brook	**SW038**	**04 Sep 2017**	**RE_SW18**	**Normal**	**EP1710911**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.071*	0.043	0.086													
Ellen Brook	**SW038**	**13 Jun 2019**	**0967_SW038_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.89***	4.54	4.74													
Ellen Brook	**SW038**	**14 Jun 2019**	**0967_SW038_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.33***	4.02	4.20													
Ellen Brook	**SW038**	**15 Jun 2019**	**0967_QC223_190615**	**Interlab Duplicate**	**228322**	<0.02	<0.05	<0.1	<0.02	<0.5	*1.9*		2.4													
Ellen Brook	**SW038**	**15 Jun 2019**	**0967_SW038_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.42***	2.75	2.86													
Ellen Brook	**SW038**	**16 Jun 2019**	**0967_SW038_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.59***	2.99	3.12													
Ellen Brook	**SW038**	**17 Jun 2019**	**0967_SW038_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.09***	3.55	3.70													
Ellen Brook	**SW038**	**07 Nov 2019**	**0967_SW038_191107**	**Normal**	**EP1911618**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.06***	2.32	2.41	<1	118	<1	118	5.55	5.41	94	1.30	26	19	13	5	75
Ellen Brook	**SW038**	**30 Jun 2020**	**0967_SW038_200630**	**Normal**	**EP2006828**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.40***	2.70	2.80	<1	54	<1	54	8.86	7.45	247	8.63	39	20	18	9	109
Ellen Brook	**SW038**	**01 Jul 2020**	**0967_SW038_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.74***	3.11	3.22	<1	56	<1	56	8.87	7.66	243	7.29	43	20	19	9	112
Ellen Brook	**SW038**	**01 Jul 2020**	**0967_SW038_200701**	**Normal**	**EP2006833**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.24*	0.26	0.26	<1	56	<1	56	13.4	11.2	388	8.98	62	28	31	13	158
Ellen Brook	**SW038**	**02 Jul 2020**	**0967_SW038_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	***6.76***	7.83	8.21	<1	67	<1	67	3.67	3.47	65	2.79	24	18	7	5	43
Ellen Brook	**SW038**	**03 Jul 2020**	**0967_SW038_200703**	**Normal**	**EP2006949**	<0.02	<0.05	<0.05	<0.02	<0.05	***6.45***	7.53	7.82	<1	67	<1	67	4.11	3.88	82	2.83	22	15	8	5	54
Ellen Brook	**SW038**	**04 Jul 2020**	**0967_SW038_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	***7.50***	8.73	9.12	<1	70	<1	70	3.70	4.06	66	4.64	21	19	8	4	54
Ellen Brook	**SW038**	**12 Oct 2020**	**0967_SW038_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.88***	4.32	4.44	<1	132	<1	132	6.10	5.91	114	1.59	12	25	12	6	81
Ellen Brook	**SW038**	**31 May 2021**	**0967_SW038_210531**	**Normal**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.38***	2.94	3.08	<1	48	<1	48	2.47	2.42	41	0.93	17	9	5	5	33
Ellen Brook	**SW038**	**01 Jun 2021**	**0967_SW038_210601**	**Normal**	**EP2106150**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.68***	5.77	6.06	<1	53	<1	53	2.39	2.58	36	3.89	15	13	5	5	32
Ellen Brook	**SW038**	**02 Jun 2021**	**0967_SW038_210602**	**Normal**	**EP2106207**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.57***	5.64	5.86	<1	58	<1	58	2.49	2.56	36	1.47	15	14	5	4	31
Ellen Brook	**SW038**	**03 Jun 2021**	**0967_SW038_210603**	**Normal**	**EP2106284**	<0.02	<0.05	<0.05	<0.02	<0.05	***4.27***	5.03	5.24	<1	79	<1	79	3.00	2.89	40	1.79	14	15	6	5	35
Ellen Brook	**SW038**	**04 Jun 2021**	**0967_SW038_210604**	**Normal**	**EP2106321**	<0.02	<0.05	<0.05	<0.02	<0.05	***3.66***	4.34	4.54	<1	61	<1	61	2.67	2.72	41	0.93	14	14	5	5	34
Ellen Brook	**SW038**	**09 Sep 2021**	**0967_SW038_210909**	**Normal**	**EP2110595**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.81*	0.91	0.93	<1	83	<1	83	13.1	11.3	366	7.53	55	29	28	9	168
Ellen Brook	**SW038**	**21 Jun 2022**	**0967_SW038_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12	<1	53	<1	53	18.6	16.1	570	7.08	70	29	44	16	245
Ellen Brook	**SW038**	**22 Jun 2022**	**0967_SW038_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.18	0.18	<1	56	<1	56	19.0	17.1	579	5.03	72	32	48	16	257
Ellen Brook	**SW038**	**23 Jun 2022**	**0967_SW038_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.20	0.20	<1	50	<1	50	18.6	17.1	577	4.06	62	32	48	17	256
Ellen Brook	**SW038**	**24 Jun 2022**	**0967_SW038_220624**	**Normal**	**EP2207893**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.07*	1.14	1.16	<1	78	<1	78	13.9	12.6	397	4.72	53	31	34	12	183
Ellen Brook	**SW038**	**25 Jun 2022**	**0967_SW038_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.27	0.27	<1	63	<1	63	17.5	15.1	533	7.40	58	32	41	13	225
Ellen Brook	**SW038**	**20 Sep 2022**	**0967_SW038_220920**	**Normal**	**EP2212158**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.29*	0.29	0.29	<1	74	<1	74	11.6	9.96	339	7.62	27	23	25	9	150
Ellen Brook	**SW038**	**09 Jun 2023**	**0967_SW038_230609**	**Normal**	**EP2307643**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.11*	1.28	1.31	<1	41	<1	41	3.25	2.84	76	6.75	14	10	6	6	39

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ellen Brook	**SW038**	**10 Jun 2023**	**0967_SW038_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.20*	1.39	1.43	<1	68	<1	68	3.98	3.85	70	1.63	31	18	6	6	53
Ellen Brook	**SW038**	**11 Jun 2023**	**0967_SW038_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.29*	1.48	1.52	<1	73	<1	73	3.98	3.85	68	1.66	29	18	6	6	53
Ellen Brook	**SW038**	**12 Jun 2023**	**0967_SW038_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.61***	3.17	3.30	<1	64	<1	64	4.12	4.31	80	2.30	28	17	6	9	63
Ellen Brook	**SW038**	**13 Jun 2023**	**0967_SW038_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.62***	3.28	3.46	<1	67	<1	67	4.17	4.12	79	0.67	29	16	8	7	57
Ellen Brook	**SW038**	**18 Sep 2023**	**0967_SW038_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*1.29*	1.49	1.55	<1	90	<1	90	9.76	8.82	249	5.05	45	28	19	8	130
Ellen Brook	**SW042**	**26 Oct 2016**	**RE_SW22**	**Normal**	**EP1610186**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.116*	0.136	0.146	<1	66	<1	66			705			30	59	13	348
Ellen Brook	**SW042**	**19 Nov 2019**	**0967_SW042_191119**	**Normal**	**EP1912126**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.28	0.28	<1	81	<1	81	24.2	22.0	762	4.79	53	35	63	23	333
Ellen Brook	**SW042**	**14 Oct 2020**	**0967_SW042_201014**	**Normal**	**EP2011183**	<0.02	<0.05	<0.05	<0.02	<0.05	***7.57***	11.8	13.2	<1	241	<1	241	41.6	42.4	1,240	0.88	88	129	112	24	600
Ellen Brook	**SW042**	**07 Sep 2021**	**0967_SW042_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	61	18.2	14.4	546	11.7	76	26	38	12	222
Ellen Brook	**SW042**	**23 Sep 2022**	**0967_SW042_220923**	**Normal**	**EP2212363**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	64	<1	64	14.6	13.3	445	4.71	37	26	35	11	203
Ellen Brook	**SW042**	**15 Sep 2023**	**0967_SW042_230915**	**Normal**	**EP2312794**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	51	<1	51	17.4	14.5	553	9.14	40	20	37	12	234
Ki-it Monger Brook	**SW044**	**27 Oct 2016**	**RK_SW24**	**Normal**	**EP1610241**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*1.15*	1.21	1.23	<1	120	<1	120			206			22	21	6	128
Ki-it Monger Brook	**SW044**	**22 Aug 2017**	**RK_SW24**	**Normal**	**EP1709097**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.082*	0.065	0.116	<1	52	<1	52			224			18	19	5	117
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_QC101_191022**	**Field_D**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.50***	2.75	2.78	<1	175	<1	175	9.61	8.46	199	6.34	24	24	19	7	127
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_QC201_191022**	**Interlab_D**	**684560**	<0.05	<0.05	<0.05	<0.05	<0.05	***2.68***	2.86	2.92	<10	150					220						
Ki-it Monger Brook	**SW044**	**22 Oct 2019**	**0967_SW044_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.17***	2.40	2.43	<1	144	<1	144	8.99	8.55	199	2.50	24	24	19	7	129
Ki-it Monger Brook	**SW044**	**12 Oct 2020**	**0967_SW044_201012**	**Normal**	**EP2011010**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.37*	0.37	0.37	<1	125	<1	125	7.87	7.71	175	1.06	21	33	9	9	117
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_QC106_210907**	**Field_D**	**EP2110448**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16	<1	78	<1	78	11.3	9.90	298	6.48	63	23	26	7	148
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_QC206_210907**	**Interlab_D**	**823604**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.15*	0.2	0.2													
Ki-it Monger Brook	**SW044**	**07 Sep 2021**	**0967_SW044_210907**	**Normal**	**EP2110448**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13	<1	79	<1	79	11.3	9.90	298	6.47	62	23	26	7	148
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_QC103_220919**	**Field_D**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	0.57	0.57	<1	90	<1	90	6.96	6.62	158	2.53	34	23	16	6	92
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_QC203_220919**	**Interlab_D**	**926012**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.38*	0.45	0.45													
Ki-it Monger Brook	**SW044**	**19 Sep 2022**	**0967_SW044_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.56*	0.62	0.62	<1	90	<1	90	7.07	6.71	161	2.63	35	23	16	6	94
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_QC101_230911**	**Field Duplicate**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.53	0.53	<1	105	<1	105	8.59	7.67	205	5.63	34	26	18	6	109
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_QC201_230911**	**Interlab Duplicate**	**1026632**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.55*	0.6	0.6													
Ki-it Monger Brook	**SW044**	**11 Sep 2023**	**0967_SW044_230911**	**Normal**	**EP2312522**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.51*	0.55	0.55	<1	104	<1	104	8.61	8.00	208	3.65	32	31	19	6	109
Ki-it Monger Brook	**SW046**	**27 Oct 2016**	**RK_SW26**	**Normal**	**EP1610241**	<0.0005	<0.001	<0.001	<0.0005	<0.001	*0.11*	0.14	0.148	<1	104	<1	104			200			18	22	7	125
Ki-it Monger Brook	**SW046**	**22 Oct 2019**	**0967_SW046_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.18	0.18	<1	117	<1	117	9.26	8.44	236	4.66	13	12	21	6	137
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_QC103_201012**	**Field Duplicate**	**EP2011010**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	21	<1	21	4.98	4.87	150	1.18	16	8	9	8	81
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_QC203_201012**	**Interlab Duplicate**	**750345**	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1	<10	21	<20	21			120						
Ki-it Monger Brook	**SW046**	**12 Oct 2020**	**0967_SW046_201012**	**Normal**	**EP2011010**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	22	<1	22	4.97	4.87	148	1.02	17	8	9	8	81
Ki-it Monger Brook	**SW046**	**09 Aug 2021**	**0967_SW046_210809**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ki-it Monger Brook	**SW046**	**24 Aug 2021**	**0967_SW046_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	68	<1	68	11.0	9.38	304	8.18	54	22	24	7	141
Ki-it Monger Brook	**SW046**	**08 Sep 2021**	**0967_SW046_210908**	**Normal**	**EP2110527**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	81	<1	81	11.7	9.30	313	11.6	62	22	24	7	139
Ki-it Monger Brook	**SW046**	**19 Sep 2022**	**0967_SW046_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	94	<1	94	9.06	8.48	223	3.32	43	28	21	7	119
Ki-it Monger Brook	**SW046**	**13 Sep 2023**	**0967_SW046_230913**	**Normal**	**EP2312634**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10	<1	89	<1	89	6.34	5.84	141	4.11	28	21	13	6	82
Ellen Brook	**SW047**	**28 Apr 2017**	**RE_SW27**	**Normal**	**EP1704272**	<0.002	<0.005	<0.005	<0.002	<0.005	*1.798*	2.3	2.91	<1	333	<1	333			1,830			121	156	40	880
Ellen Brook	**SW047**	**24 Aug 2017**	**RE_SW27**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.043	0.022	0.055	<1	67	<1	67			440			28	36	13	206
Ellen Brook	**SW047**	**22 Oct 2019**	**0967_SW047_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.16	0.16	<1	89	<1	89	21.3	21.0	664	0.73	40	35	56	16	328
Ellen Brook	**SW047**	**22 Oct 2020**	**0967_SW047_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.21	0.21	<1	78	<1	78	22.2	23.8	694	3.43	54	35	65	17	375
Ellen Brook	**SW047**	**10 Aug 2021**	**0967_SW047_210810**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.20	0.20													
Ellen Brook	**SW047**	**24 Aug 2021**	**0967_SW047_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	70	<1	70	17.1	13.9	502	10.4	75	32	36	13	207
Ellen Brook	**SW047**	**08 Sep 2021**	**0967_SW047_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	70	<1	70	15.3	14.1	487	4.20	10	28	36	12	217
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_QC115_220920**	**Field Duplicate**	**EP2212158**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10													
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_QC215_220920**	**Interlab Duplicate**	**926012**	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.08	<0.1													
Ellen Brook	**SW047**	**20 Sep 2022**	**0967_SW047_220920**	**Normal**	**EP2212158**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	70	<1	70	14.1	12.1	419	7.40	41	26	31	11	184
Ellen Brook	**SW047**	**18 Sep 2023**	**0967_SW047_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	72	<1	72	17.9	14.7	555	9.65	38	26	38	12	230
Ellen Brook	**SW048**	**28 Apr 2017**	**RE_SW28**	**Normal**	**EP1704272**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.298*	0.159	0.374	<1	98	<1	98			181			16	23	8	120
Ellen Brook	**SW048**	**24 Aug 2017**	**RE_SW28**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.045	0.024	0.059	<1	68	<1	68			418			28	33	13	194
Ellen Brook	**SW048**	**13 Jun 2019**	**0967_SW048_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.83*	0.99	1.02													
Ellen Brook	**SW048**	**14 Jun 2019**	**0967_SW048_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.42*	0.50	0.50													
Ellen Brook	**SW048**	**15 Jun 2019**	**0967_SW048_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.75*	0.91	0.94													
Ellen Brook	**SW048**	**16 Jun 2019**	**0967_SW048_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.54*	0.66	0.66													
Ellen Brook	**SW048**	**17 Jun 2019**	**0967_SW048_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.34*	0.40	0.40													
Ellen Brook	**SW048**	**22 Oct 2019**	**0967_SW048_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.18	0.18	<1	89	<1	89	21.6	21.4	670	0.30	42	36	57	16	334
Ellen Brook	**SW048**	**30 Jun 2020**	**0967_SW048_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.15*	0.15	0.15	<1	39	<1	39	16.7	14.2	514	7.95	69	24	38	14	220
Ellen Brook	**SW048**	**01 Jul 2020**	**0967_SW048_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.31*	0.34	0.34	<1	44	<1	44	14.4	12.2	433	8.40	62	22	32	13	186
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_QC101_200702**	**Field Duplicate**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.35	0.35	<1	48	<1	48	16.7	14.3	505	7.52	71	26	39	14	218
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_QC201_200702**	**Interlab Duplicate**	**729906**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.3*	0.39	0.4	<10	52					450						
Ellen Brook	**SW048**	**02 Jul 2020**	**0967_SW048_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.28*	0.30	0.30	<1	48	<1	48	16.5	14.6	499	5.99	70	26	40	15	222
Ellen Brook	**SW048**	**03 Jul 2020**	**0967_SW048_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.23*	0.25	0.25	<1	58	<1	58	19.8	16.3	598	9.64	84	28	45	16	248
Ellen Brook	**SW048**	**04 Jul 2020**	**0967_SW048_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.20*	0.22	0.22	<1	50	<1	50	20.8	18.5	639	6.08	88	32	52	16	280
Ellen Brook	**SW048**	**31 May 2021**	**0967_SW048_210531**	**Normal**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.53*	0.63	0.65	<1	31	<1	31	24.5	21.6	760	6.10	116	35	59	19	335
Ellen Brook	**SW048**	**01 Jun 2021**	**0967_SW048_210601**	**Normal**	**EP2106150**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.36*	0.41	0.41	<1	36	<1	36	28.3	28.1	874	0.30	139	41	79	23	436
Ellen Brook	**SW048**	**02 Jun 2021**	**0967_SW048_210602**	**Normal**	**EP2106207**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.27*	0.31	0.31	<1	36	<1	36	29.6	29.5	902	0.21	166	43	81	23	462
Ellen Brook	**SW048**	**03 Jun 2021**	**0967_SW048_210603**	**Normal**	**EP2106284**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.36	0.36	<1	34	<1	34	29.2	28.3	902	1.62	149	42	77	23	443
Ellen Brook	**SW048**	**04 Jun 2021**	**0967_SW048_210604**	**Normal**	**EP2106321**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.24*	0.26	0.26	<1	34	<1	34	28.4	26.1	881	4.22	139	38	70	23	411
Ellen Brook	**SW048**	**08 Sep 2021**	**0967_SW048_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	72	<1	72	17.4	14.4	521	9.43	62	30	36	12	222
Ellen Brook	**SW048**	**21 Jun 2022**	**0967_SW048_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.19	0.19	<1	51	<1	51	17.6	15.2	545	7.53	59	27	41	15	231
Ellen Brook	**SW048**	**22 Jun 2022**	**0967_SW048_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.18	0.18	<1	54	<1	54	18.8	16.6	575	6.29	72	31	46	16	249
Ellen Brook	**SW048**	**23 Jun 2022**	**0967_SW048_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.18*	0.20	0.20	<1	57	<1	57	19.0	17.5	582	3.96	69	32	49	17	264
Ellen Brook	**SW048**	**24 Jun 2022**	**0967_SW048_220624**	**Normal**	**EP2207893**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.37*	0.42	0.42	<1	55	<1	55	18.4	17.2	560	3.32	72	32	46	17	262
Ellen Brook	**SW048**	**25 Jun 2022**	**0967_SW048_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.21	0.21	<1	58	<1	58	19.9	17.9	613	5.21	69	32	48	16	275
Ellen Brook	**SW048**	**21 Sep 2022**	**0967_SW048_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	75	<1	75	13.7	11.5	404	8.62	38	27	29	10	173
Ellen Brook	**SW048**	**09 Jun 2023**	**0967_SW048_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.55*	0.68	0.68	<1	45	<1	45	8.73	8.59	231	0.79	63	20	20	8	132
Ellen Brook	**SW048**	**10 Jun 2023**	**0967_QC108_230610**	**Field Duplicate**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.46	0.46													
Ellen Brook	**SW048**	**10 Jun 2023**	**0967_QC208_230610**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.41*	0.48	0.49													
Ellen Brook	**SW048**	**10 Jun 2023**	**0967_SW048_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.39*	0.46	0.46	<1	44	<1	44	17.1	20.2	495	8.27	108	33	40	14	342
Ellen Brook	**SW048**	**12 Jun 2023**	**0967_SW048_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.79	0.81	<1	50	<1	50	17.7	19.8	515	5.44	106	34	54	16	304
Ellen Brook	**SW048**	**13 Jun 2023**	**0967_SW048_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.60*	0.76	0.78	<1	46	<1	46	17.6	19.1	511	4.18	108	29	52	15	299
Ellen Brook	**SW048**	**18 Sep 2023**	**0967_SW048_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	74	<1	74	17.4	14.3	538	9.70	35	26	36	12	224
Ellen Brook	**SW049**	**28 Apr 2017**	**RE_SW29**	**Normal**	**EP1704272**	<0.002	<0.005	<0.005	<0.002	<0.005	*0.405*	0.324	0.559	<1	107	<1	107			958			56	81	28	473
Ellen Brook	**SW049**	**24 Aug 2017**	**RE_SW29**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.045	0.018	0.053	<1	68	<1	68			422			28	34	13	196
Ellen Brook	**SW049**	**13 Jun 2019**	**0967_QC115_190613**	**Field Duplicate**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW049**	**13 Jun 2019**	**0967_QC215_190613**	**Interlab Duplicate**	**228248**	<0.02	<0.05	<0.1	<0.02	<0.5	0.02		0.02													

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
Ellen Brook	**SW049**	**23 Jun 2022**	**0967_SW049_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
Ellen Brook	**SW049**	**14 Jun 2019**	**0967_SW049_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
Ellen Brook	**SW049**	**15 Jun 2019**	**0967_SW049_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03													
Ellen Brook	**SW049**	**16 Jun 2019**	**0967_SW049_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04													
Ellen Brook	**SW049**	**17 Jun 2019**	**0967_SW049_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.63	0.65													
Ellen Brook	**SW049**	**04 Dec 2019**	**0967_SW049_191204**	**Normal**	**EP1912893**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	82	<1	82	8.85	8.42	232	2.51	32	36	18	7	114
Ellen Brook	**SW049**	**30 Jun 2020**	**0967_SW049_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.23*	0.23	0.23	<1	40	<1	40	16.0	13.4	489	8.90	69	24	36	13	205
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_QC101_200701**	**Field Duplicate**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.19*	0.19	0.19	<1	41	<1	41	15.7	13.2	476	8.54	69	23	35	14	203
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_QC201_01072020**	**Interlab Duplicate**	**729577**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.19*	0.2	0.2	<10	41					49						
Ellen Brook	**SW049**	**01 Jul 2020**	**0967_SW049_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.22	0.22	<1	41	<1	41	15.7	13.2	477	8.62	69	23	35	14	203
Ellen Brook	**SW049**	**02 Jul 2020**	**0967_SW049_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.44*	0.48	0.48	<1	45	<1	45	15.2	12.7	457	8.98	69	23	34	13	194
Ellen Brook	**SW049**	**03 Jul 2020**	**0967_SW049_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.30*	0.32	0.32	<1	48	<1	48	17.8	14.8	539	9.16	81	28	41	15	223
Ellen Brook	**SW049**	**04 Jul 2020**	**0967_SW049_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.26*	0.28	0.28	<1	48	<1	48	20.3	17.6	617	6.91	92	33	49	16	266
Ellen Brook	**SW049**	**22 Oct 2020**	**0967_SW049_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.22*	0.27	0.27	<1	83	<1	83	23.2	23.4	720	0.56	59	40	65	16	361
Ellen Brook	**SW049**	**31 May 2021**	**0967_SW049_210531**	**Normal**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	46	<1	46	2.21	2.22	31	0.25	20	12	6	5	23
Ellen Brook	**SW049**	**01 Jun 2021**	**0967_SW049_210601**	**Normal**	**EP2106150**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	48	<1	48	2.57	2.73	38	3.03	26	14	7	6	30
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_QC107_210602**	**Field Duplicate**	**EP2106207**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	51	<1	51	3.07	3.04	50	0.58	31	15	8	6	34
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_QC207_210602**	**Interlab Duplicate**	**800405**	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.05	<0.1	<10	53	<20	53			51						
Ellen Brook	**SW049**	**02 Jun 2021**	**0967_SW049_210602**	**Normal**	**EP2106207**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	52	<1	52	3.12	3.06	51	0.94	31	15	8	7	34
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_QC112_210603**	**Field Duplicate**	**EP2106284**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	55	<1	55	3.40	3.70	55	4.26	36	17	10	8	42
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_QC212_210603**	**Interlab Duplicate**	**800794**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.09*	0.09	<0.1	<10	53	<20	53			58						
Ellen Brook	**SW049**	**03 Jun 2021**	**0967_SW049_210603**	**Normal**	**EP2106284**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	53	<1	53	3.34	3.66	55	4.58	35	17	10	8	41
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_QC115_210604**	**Field Duplicate**	**EP2106321**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10	<1	59	<1	59	4.04	3.65	63	5.01	52	16	10	8	42
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_QC216_210604**	**Interlab Duplicate**	**801498**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.1*	0.1	0.1	<10	61	<20	61			65						
Ellen Brook	**SW049**	**04 Jun 2021**	**0967_SW049_210604**	**Normal**	**EP2106321**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	58	<1	58	4.07	3.87	64	2.46	53	17	11	8	44
Ellen Brook	**SW049**	**08 Sep 2021**	**0967_SW049_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	72	<1	72	17.3	14.2	514	9.92	67	30	36	12	217
Ellen Brook	**SW049**	**21 Jun 2022**	**0967_SW049_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	116	<1	116	3.80	3.74	32	0.90	28	38	6	5	28
Ellen Brook	**SW049**	**22 Jun 2022**	**0967_SW049_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	114	<1	114	3.71	3.88	31	2.25	27	41	6	5	28
Ellen Brook	**SW049**	**23 Jun 2022**	**0967_SW049_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	121	<1	121	3.86	4.08	32	2.76	26	41	7	6	30
Ellen Brook	**SW049**	**24 Jun 2022**	**0967_SW049_220624**	**Normal**	**EP2207893**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.25*	0.27	0.27	<1	57	<1	57	18.6	15.2	565	9.96	72	31	42	13	227
Ellen Brook	**SW049**	**25 Jun 2022**	**0967_SW049_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	15	157	<1	172	5.18	5.35	36	1.57	35	60	8	5	36
Ellen Brook	**SW049**	**21 Sep 2022**	**0967_SW049_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10	<1	74	<1	74	14.0	11.7	413	8.84	42	27	30	10	176
Ellen Brook	**SW049**	**09 Jun 2023**	**0967_SW049_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.80*	0.96	0.99	<1	41	<1	41	7.05	6.97	173	0.57	65	18	19	8	99
Ellen Brook	**SW049**	**10 Jun 2023**	**0967_SW049_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.61*	0.75	0.77	<1	40	<1	40	7.60	8.33	190	4.64	69	20	19	8	128
Ellen Brook	**SW049**	**11 Jun 2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.64*	0.78	0.80	<1	43	<1	43	7.62	8.16	188	3.45	70	20	18	8	126
Ellen Brook	**SW049**	**11 Jun 2023**	**0967_SW049_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.41*	0.50	0.50	<1	47	<1	47	17.3	19.8	501	6.72	107	33	38	14	337
Ellen Brook	**SW049**	**12 Jun 2023**	**0967_SW049_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.50*	0.63	0.65	<1	49	<1	49	12.5	13.8	332	4.73	104	34	36	12	202
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_QC124_230613**	**Field Duplicate**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.38*	0.49	0.49	<1	43	<1	43	18.8	20.5	539	4.43	130	40	53	16	316
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_QC224_230613**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.4*	0.49	0.5													
Ellen Brook	**SW049**	**13 Jun 2023**	**0967_SW049_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.36*	0.46	0.46	<1	43	<1	43	18.9	20.6	544	4.17	130	41	54	16	314
Ellen Brook	**SW049**	**19 Sep 2023**	**0967_SW049_230919**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	74	<1	74	18.4	16.4	572	5.66	38	33	44	13	249
Ellen Brook	**SW050**	**28 Apr 2017**	**RE_SW30**	**Normal**	**EP1704272**	<0.002	<0.005	<0.005	<0.002	<0.005	0.064	0.057	0.102	<1	183	<1	183			312			80	30	14	168
Ellen Brook	**SW050**	**24 Aug 2017**	**RE_SW30**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.045	0.018	0.053	<1	74	<1	74			406			31	34	13	195
Ellen Brook	**SW050**	**08 Mar 2019**	**0967_SW050_190308**	**Normal**	**EP1902156**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.03	0.03													
Ellen Brook	**SW050**	**23 Oct 2019**	**0967_SW050_191023**	**Normal**	**EP1910898**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16	<1	144	<1	144	19.4	18.9	544	1.10	55	52	47	17	277
Ellen Brook	**SW050**	**06 May 2020**	**0967_SW050_200506**	**Normal**	**EP2004586**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	143	<1	143	15.7	14.2	361	4.90	128	79	31	12	171
Ellen Brook	**SW050**	**22 Oct 2020**	**0967_SW050_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.19	0.19	<1	123	<1	123	20.0	20.3	581	0.68	58	52	53	16	298
Ellen Brook	**SW050**	**08 Sep 2021**	**0967_SW050_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	78	<1	78	16.9	14.3	494	8.47	68	33	36	12	215
Ellen Brook	**SW050**	**21 Apr 2022**	**0967_SW050_220421**	**Normal**	**EP2204670**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	165	<1	165	14.5	15.2	315	2.20	112	85	34	15	178
Ellen Brook	**SW050**	**21 Sep 2022**	**0967_SW050_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	86	<1	86	7.18	6.36	136	6.03	78	39	11	8	76
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_QC104_230411**	**Field Duplicate**	**EP2304521**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_QC204_230411**	**Interlab Duplicate**	**982488**	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	0.05	<0.1													
Ellen Brook	**SW050**	**11 Apr 2023**	**0967_SW050_230411**	**Normal**	**EP2304521**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	122	<1	122	16.0	16.0	349	0.23	181	74	34	12	211
Ellen Brook	**SW050**	**18 Sep 2023**	**0967_SW050_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	111	<1	111	15.4	13.2	437	7.64	42	31	32	12	201
Ellen Brook	**SW052**	**28 Apr 2017**	**RE_SW32**	**Normal**	**EP1704272**	<0.002	<0.005	<0.005	<0.002	<0.005	0.028	0.038	0.054	<1	136	<1	136			219			56	28	13	124
Ellen Brook	**SW052**	**28 Apr 2017**	**SW_FD05**	**Field Duplicate**	**EP1704272**						0	<0.01														
Ellen Brook	**SW052**	**28 Apr 2017**	**SW_FS05**	**Interlab Duplicate**	**166077**						0.02															
Ellen Brook	**SW052**	**24 Aug 2017**	**RE_SW32**	**Normal**	**EP1709164**	<0.002	<0.005	<0.005	<0.002	<0.005	0.056	0.043	0.074	<1	78	<1	78			382			32	29	11	169
Ellen Brook	**SW052**	**08 Mar 2019**	**0967_QC108_190308**	**Field Duplicate**	**EP1902156**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW052**	**08 Mar 2019**	**0967_SW052_190308**	**Normal**	**EP1902156**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Ellen Brook	**SW052**	**08 Mar 2019**	**QC208_190308**	**Interlab Duplicate**	**223469**	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01		<0.01													
Ellen Brook	**SW052**	**22 Oct 2019**	**0967_SW052_191022**	**Normal**	**EP1910841**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13	<1	136	<1	136	14.3	13.6	372	2.63	52	48	33	14	186
Ellen Brook	**SW052**	**06 May 2020**	**0967_SW052_200506**	**Normal**	**EP2004586**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	156	<1	156	9.27	9.10	188	0.92	41	56	18	17	101
Ellen Brook	**SW052**	**12 Oct 2020**	**0967_SW052_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	109	<1	109	15.5	14.9	430	1.97	57	46	37	13	212
Ellen Brook	**SW052**	**20 Apr 2021**	**0967_SW052_210420**	**Normal**	**EP2104281**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	155	<1	155	9.45	8.57	195	4.89	41	49	17	13	101
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_QC110_210908**	**Field Duplicate**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	86	<1	86	16.4	13.5	465	9.56	74	36	33	12	200
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_QC210_210908**	**Interlab Duplicate**	**823602**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.09*	0.11	0.11													
Ellen Brook	**SW052**	**08 Sep 2021**	**0967_SW052_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	85	<1	85	14.4	13.0	431	5.00	24	34	32	12	192
Ellen Brook	**SW052**	**21 Apr 2022**	**0967_QC113_220421**	**Field Duplicate**	**EP2204670**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	144	<1	144	9.34	10.0	195	3.72	46	58	20	15	118
Ellen Brook	**SW052**	**21 Apr 2022**	**0967_SW052_220421**	**Normal**	**EP2204670**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	145	<1	145	9.35	10.1	194	3.87	47	58	20	15	119
Ellen Brook	**SW052**	**21 Sep 2022**	**0967_SW052_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11	<1	87	<1	87	12.8	11.0	365	7.76	38	30	27	10	161
Ellen Brook	**SW052**	**11 Apr 2023**	**0967_SW052_230411**	**Normal**	**EP2304521**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	135	<1	135	8.27	8.19	165	0.46	44	38	16	11	108
Ellen Brook	**SW052**	**19 Sep 2023**	**0967_SW052_230919**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.08*	0.08	0.08	<1	90	<1	90	14.6	13.5	428	3.89	36	38	34	12	196
West Bullsbrook	**SW053**	**25 Aug 2017**	**WB_SW33**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.003	0.003	0.003	<1	46	<1	46			101			19	8	11	56
West Bullsbrook	**SW053**	**19 Nov 2019**	**0967_SW053_191119**	**Normal**	**EP1912126**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	75	<1	75	4.54	5.18	108	6.58	<10	26	9	21	60
West Bullsbrook	**SW053**	**14 Oct 2020**	**0967_SW053_201014**	**Normal**	**EP2011173**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01										25	10	13	60
West Bullsbrook	**SW053**	**06 Sep 2021**	**0967_SW053_210906**	**Normal**	**EP2110383**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	59	<1	59	4.79	5.27	128	4.80	<20	24	9	13	69
West Bullsbrook	**SW053**	**21 Sep 2022**	**0967_SW053_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	58	<1	58	4.46	4.68	111	2.49	8	21	8	11	62
West Bullsbrook	**SW053**	**14 Sep 2023**	**0967_SW053_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	48	<1	48	4.37	4.61	118	2.68	4	18	8	14	62
West Bullsbrook	**SW055**	**25 Aug 2017**	**WB_SW35**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.035	0.003	0.035	<1	48	<1	48			116			19	9	11	58
West Bullsbrook	**SW055**	**13 Jun 2019**	**0967_SW055_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**14 Jun 2019**	**0967_SW055_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**15 Jun 2019**	**0967_SW055_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	***2.72***	3.05	3.16													
West Bullsbrook	**SW055**	**16 Jun 2019**	**0967_QC126_190616**	**Field Duplicate**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**16 Jun 2019**	**0967_QC226_190616**	**Interlab Duplicate**	**228321**	<0.02	<0.05	<0.1	<0.02	<0.5	<0.01		<0.01													

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
West Bullsbrook	**SW055**	**16 Jun 2019**	**0967_SW055_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**17 Jun 2019**	**0967_SW055_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**19 Nov 2019**	**0967_SW055_191119**	**Normal**	**EP1912126**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	86	<1	86	4.78	5.49	107	6.93	2	30	9	20	63
West Bullsbrook	**SW055**	**30 Jun 2020**	**0967_SW055_200630**	**Normal**	**EP2006828**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	52	<1	52	6.12	5.87	147	2.09	45	30	11	20	68
West Bullsbrook	**SW055**	**01 Jul 2020**	**0967_SW055_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	53	<1	53	6.34	5.83	148	4.18	53	30	11	20	67
West Bullsbrook	**SW055**	**02 Jul 2020**	**0967_SW055_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	52	<1	52	6.47	6.00	155	3.81	51	30	12	20	69
West Bullsbrook	**SW055**	**03 Jul 2020**	**0967_SW055_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	52	<1	52	6.34	5.82	148	4.25	54	29	11	20	68
West Bullsbrook	**SW055**	**04 Jul 2020**	**0967_SW055_200704**	**Normal**	**EP2006966**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.17*	0.17	0.17	<1	52	<1	52	6.41	5.96	152	3.64	52	30	11	20	70
West Bullsbrook	**SW055**	**14 Oct 2020**	**0967_SW055_201014**	**Normal**	**EP2011183**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	61	4.49	5.40	116	9.24	<20	28	10	14	65
West Bullsbrook	**SW055**	**11 Aug 2021**	**0967_SW055_210811**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01													
West Bullsbrook	**SW055**	**25 Aug 2021**	**0967_SW055_210825**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW055**	**06 Sep 2021**	**0967_SW055_210906**	**Normal**	**EP2110383**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	61	<1	61	4.94	5.45	132	4.86	<20	25	10	13	70
West Bullsbrook	**SW055**	**21 Jun 2022**	**0967_SW055_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	60	<1	60	5.90	6.17	151	2.29	21	30	12	20	73
West Bullsbrook	**SW055**	**22 Jun 2022**	**0967_SW055_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	54	<1	54	5.79	6.07	145	2.33	30	29	12	18	73
West Bullsbrook	**SW055**	**23 Jun 2022**	**0967_SW055_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	51	<1	51	5.48	6.14	144	5.76	19	30	12	19	73
West Bullsbrook	**SW055**	**24 Jun 2022**	**0967_SW055_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	55	<1	55	5.90	5.40	143	4.46	37	27	10	14	66
West Bullsbrook	**SW055**	**25 Jun 2022**	**0967_SW055_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	55	<1	55	5.63	5.49	140	1.30	28	27	10	14	68
West Bullsbrook	**SW055**	**21 Sep 2022**	**0967_SW055_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	60	<1	60	4.66	4.77	117	1.12	8	21	8	11	64
West Bullsbrook	**SW055**	**09 Jun 2023**	**0967_SW055_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	34	<1	34	6.15	6.15	146	0.03	65	25	12	24	76
West Bullsbrook	**SW055**	**10 Jun 2023**	**0967_SW055_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	35	<1	35	5.68	6.58	127	7.40	67	27	12	25	83
West Bullsbrook	**SW055**	**11 Jun 2023**	**0967_SW055_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	37	<1	37	6.02	6.66	137	5.05	68	28	12	26	83
West Bullsbrook	**SW055**	**12 Jun 2023**	**0967_SW055_230612**	**Normal**	**EP2307715**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	38	<1	38	5.96	6.94	137	7.64	64	27	11	32	89
West Bullsbrook	**SW055**	**13 Jun 2023**	**0967_SW055_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	34	<1	34	6.03	6.41	141	3.04	66	26	13	22	80
West Bullsbrook	**SW055**	**14 Sep 2023**	**0967_SW055_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	52	<1	52	4.76	4.74	129	0.18	4	19	9	14	62
West Bullsbrook	**SW057**	**25 Aug 2017**	**WB_SW37**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.026	0.019	0.03	<1	70	<1	70			160			30	12	7	77
West Bullsbrook	**SW057**	**07 Nov 2019**	**0967_SW057_191107**	**Normal**	**EP1911618**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	122	<1	122	5.09	5.23	94	1.39	<30	43	9	5	51
West Bullsbrook	**SW057**	**22 Oct 2020**	**0967_SW057_201022**	**Normal**	**EP2011560**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	125	<1	125	5.46	6.15	105	5.94	<20	51	10	5	61
West Bullsbrook	**SW057**	**09 Sep 2021**	**0967_SW057_210909**	**Normal**	**EP2110595**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	93	<1	93	7.16	6.91	188	1.79	<40	41	12	7	85
West Bullsbrook	**SW057**	**19 Sep 2022**	**0967_SW057_220919**	**Normal**	**EP2212055**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	93	<1	93	6.44	6.54	153	0.70	13	37	12	7	81
West Bullsbrook	**SW057**	**15 Sep 2023**	**0967_SW057_230915**	**Normal**	**EP2312794**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	97	<1	97	6.34	6.09	156	2.03	<1	36	10	8	75
West Bullsbrook	**SW058**	**25 Aug 2017**	**WB_SW38**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.031	0.028	0.038	<1	85	<1	85			165			34	12	7	80
West Bullsbrook	**SW058**	**13 Jun 2019**	**0967_SW058_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01													
West Bullsbrook	**SW058**	**14 Jun 2019**	**0967_SW058_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW058**	**15 Jun 2019**	**0967_SW058_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW058**	**17 Jun 2019**	**0967_SW058_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
West Bullsbrook	**SW058**	**28 Oct 2019**	**0967_SW058_191028**	**Normal**	**EP1911090**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	188	<1	188	6.75	6.60	106	1.11	<10	58	11	4	62
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_QC102_200630**	**Field Duplicate**	**EP2006828**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	150	<1	150	7.02	7.14	142	0.86	1	59	12	10	68
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_QC202_200630**	**Interlab Duplicate**	**729574**	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1	<10	160					130						
West Bullsbrook	**SW058**	**30 Jun 2020**	**0967_SW058_200630**	**Normal**	**EP2006828**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	143	<1	143	6.81	7.20	140	2.78	<1	60	12	10	68
West Bullsbrook	**SW058**	**01 Jul 2020**	**0967_SW058_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	140	<1	140	7.01	7.05	145	0.28	6	58	12	10	67
West Bullsbrook	**SW058**	**02 Jul 2020**	**0967_SW058_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	147	<1	147	7.34	7.40	143	0.39	18	62	13	11	68
West Bullsbrook	**SW058**	**03 Jul 2020**	**0967_SW058_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	204	<1	204	8.58	7.32	144	7.89	21	62	12	11	68
West Bullsbrook	**SW058**	**04 Jul 2020**	**0967_SW058_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.16*	0.16	0.16	<1	159	<1	159	7.77	7.32	145	2.96	24	63	12	9	68
West Bullsbrook	**SW058**	**12 Oct 2020**	**0967_SW058_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	152	<1	152	7.01	7.79	141	5.24	<10	65	13	5	77
West Bullsbrook	**SW058**	**31 May 2021**	**0967_SW058_210531**	**Normal**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	68	<1	68	6.00	5.47	67	4.59	132	57	8	14	37
West Bullsbrook	**SW058**	**10 Aug 2021**	**0967_SW058_210810**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW058**	**24 Aug 2021**	**0967_SW058_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02													
West Bullsbrook	**SW058**	**07 Sep 2021**	**0967_SW058_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	109	<1	109	8.02	7.88	207	0.88	<1	47	14	8	96
West Bullsbrook	**SW058**	**21 Jun 2022**	**0967_SW058_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	95	<1	95	8.39	7.95	197	2.70	45	51	15	10	90
West Bullsbrook	**SW058**	**22 Jun 2022**	**0967_SW058_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	104	<1	104	8.18	8.18	189	0.01	37	54	16	10	90
West Bullsbrook	**SW058**	**23 Jun 2022**	**0967_SW058_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	97	<1	97	7.37	8.18	174	5.24	25	54	16	10	90
West Bullsbrook	**SW058**	**24 Jun 2022**	**0967_SW058_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	105	<1	105	6.70	7.92	163	8.40	<5	53	14	10	89
West Bullsbrook	**SW058**	**25 Jun 2022**	**0967_SW058_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	109	<1	109	7.67	7.14	183	3.62	16	50	13	7	78
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_QC110_220919**	**Field Duplicate**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	104	<1	104	6.54	6.68	151	1.06	10	40	12	7	81
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_QC210_220919**	**Interlab Duplicate**	**926012**	<0.05	<0.05	<0.05	<0.05	<0.05	0.02	<0.05	<0.1													
West Bullsbrook	**SW058**	**19 Sep 2022**	**0967_SW058_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	106	<1	106	6.56	6.78	150	1.66	10	41	12	7	82
West Bullsbrook	**SW058**	**09 Jun 2023**	**0967_SW058_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	109	<1	109	8.28	7.99	150	1.80	90	49	12	20	93
West Bullsbrook	**SW058**	**10 Jun 2023**	**0967_SW058_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	100	<1	100	6.00	6.66	108	5.16	46	53	11	16	62
West Bullsbrook	**SW058**	**11 Jun 2023**	**0967_SW058_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	97	<1	97	5.52	5.58	96	0.52	42	40	8	14	59
West Bullsbrook	**SW058**	**12 Jun 2023**	**0967_SW058_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	104	<1	104	6.00	7.01	111	7.77	38	54	13	13	67
West Bullsbrook	**SW058**	**13 Jun 2023**	**0967_SW058_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	101	<1	101	5.90	6.00	105	0.92	44	42	11	12	62
West Bullsbrook	**SW058**	**14 Sep 2023**	**0967_SW058_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	101	<1	101	6.27	6.14	150	1.01	1	39	11	8	71
West Bullsbrook	**SW059**	**25 Aug 2017**	**WB_SW39**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.034	0.032	0.044	<1	91	<1	91			169			36	13	7	82
West Bullsbrook	**SW059**	**28 Oct 2019**	**0967_SW059_191028**	**Normal**	**EP1911090**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	7	168	<1	175	7.11	7.46	128	2.41	<1	60	12	5	77
West Bullsbrook	**SW059**	**12 Oct 2020**	**0967_SW059_201012**	**Normal**	**EP2010999**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	156	<1	156	7.32	8.19	149	5.61	<10	67	14	5	82
West Bullsbrook	**SW059**	**07 Sep 2021**	**0967_SW059_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	113	<1	113	8.46	8.28	220	1.07	<10	50	15	8	100
West Bullsbrook	**SW059**	**19 Sep 2022**	**0967_SW059_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	109	<1	109	6.62	6.78	150	1.21	10	41	12	7	82
West Bullsbrook	**SW059**	**14 Sep 2023**	**0967_SW059_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	102	<1	102	6.17	6.15	145	0.16	2	40	11	8	70
West Bullsbrook	**SW060**	**25 Aug 2017**	**WB_SW40**	**Normal**	**EP1709257**	<0.002	<0.005	<0.005	<0.002	<0.005	0.033	0.03	0.042	<1	100	<1	100			200			39	16	7	97
West Bullsbrook	**SW060**	**13 Jun 2019**	**0967_SW060_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.11*	0.11	0.11													
West Bullsbrook	**SW060**	**14 Jun 2019**	**0967_SW060_190614**	**Normal**	**EP1905807**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.12	0.12													
West Bullsbrook	**SW060**	**15 Jun 2019**	**0967_SW060_190615**	**Normal**	**EP1905844**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.43*	0.56	0.56													
West Bullsbrook	**SW060**	**16 Jun 2019**	**0967_SW060_190616**	**Normal**	**EP1905847**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.13*	0.13	0.13													
West Bullsbrook	**SW060**	**17 Jun 2019**	**0967_SW060_190617**	**Normal**	**EP1905846**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.14*	0.14	0.14													
West Bullsbrook	**SW060**	**07 Nov 2019**	**0967_SW060_191107**	**Normal**	**EP1911618**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	162	<1	162	6.45	6.32	114	1.00	<20	52	11	5	62
West Bullsbrook	**SW060**	**30 Jun 2020**	**0967_SW060_200630**	**Normal**	**EP2006828**	<0.02	<0.05	<0.05	<0.02	<0.05	0.01	0.01	0.01	<1	142	<1	142	6.83	7.01	140	1.30	2	58	12	10	66
West Bullsbrook	**SW060**	**01 Jul 2020**	**0967_SW060_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	141	<1	141	7.07	7.10	142	0.20	12	59	12	10	67
West Bullsbrook	**SW060**	**02 Jul 2020**	**0967_SW060_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	149	<1	149	7.57	7.41	151	1.04	16	61	13	10	70
West Bullsbrook	**SW060**	**03 Jul 2020**	**0967_SW060_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.11	0.11	<1	121	<1	121	4.65	4.76	79	1.21	<10	42	8	7	42
West Bullsbrook	**SW060**	**04 Jul 2020**	**0967_SW060_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	152	<1	152	7.58	7.69	144	0.72	23	67	13	9	70
West Bullsbrook	**SW060**	**14 Oct 2020**	**0967_SW060_201014**	**Normal**	**EP2011173**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.12*	0.12	0.12											78	21	7	114
West Bullsbrook	**SW060**	**31 May 2021**	**0967_QC102_210531**	**Field Duplicate**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02	<1	74	<1	74	1.94	1.97	9	0.76	10	25	3	5	8
West Bullsbrook	**SW060**	**31 May 2021**	**0967_SW060_210531**	**Normal**	**EP2106119**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	0.02	0.02	<1	72	<1	72	1.87	1.85	8	0.57	10	24	3	4	7
West Bullsbrook	**SW060**	**01 Jun 2021**	**0967_QC103_210601**	**Field Duplicate**	**EP2106150**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09	<1	36	<1	36	22.2	20.6	595	3.55	224	101	50	19	253
West Bullsbrook	**SW060**	**01 Jun 2021**	**0967_QC203_210601**	**Interlab Duplicate**	**800042**	<0.05	<0.05	<0.05	<0.05	<0.05	*0.08*	0.09	<0.1	<10	48	<20	48			660						

Table 4 - offsite surface water analytical results

						PFAS - Perfluoroalkyl Sulfonamides					PFAS			Inorganics										
						N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS	Carbonate Alkalinity (as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Alkalinity (total) as CaCO3	Anions Total	Cations Total	Chloride	Ionic Balance	Sulphate as SO4 - Turbidimetric (filtered)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L
LOR - Limit of Reporting						0.0005	0.001	0.001	0.0005	0.001	0.0003	0.0003	0.0003	1	1	1	1	0.01	0.01	1	0.01	1	0.5	0.5	0.5	0.5
PFAS NEMP 2020 Drinking Water											*0.07*															
PFAS NEMP 2020 Freshwater 95%																										
PFAS NEMP 2020 Recreational Water											**2**															
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Numbe**																					
West Bullsbrook	**SW060**	**01 Jun 2021**	**0967_SW060_210601**	**Normal**	**EP2106150**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10	<1	34	<1	34	22.0	20.8	597	2.82	218	102	51	20	254
West Bullsbrook	**SW060**	**10 Aug 2021**	**0967_SW060_210810**	**Normal**	**EP2109323**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
West Bullsbrook	**SW060**	**24 Aug 2021**	**0967_SW060_210824**	**Normal**	**EP2109842**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.09*	0.09	0.09													
West Bullsbrook	**SW060**	**07 Sep 2021**	**0967_SW060_210907**	**Normal**	**EP2110445**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	98	<1	98	12.6	10.8	351	7.73	35	42	24	9	149
West Bullsbrook	**SW060**	**21 Jun 2022**	**0967_SW060_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	86	<1	86	8.22	8.15	195	0.41	48	52	16	11	91
West Bullsbrook	**SW060**	**22 Jun 2022**	**0967_SW060_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	0.07	0.07	0.07	<1	104	<1	104	8.10	8.28	186	1.10	37	55	16	10	91
West Bullsbrook	**SW060**	**23 Jun 2022**	**0967_SW060_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	0.06	0.06	0.06	<1	109	<1	109	8.12	7.96	190	0.98	28	53	15	10	88
West Bullsbrook	**SW060**	**24 Jun 2022**	**0967_SW060_220624**	**Normal**	**EP2207891**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	106	<1	106	7.31	7.88	184	3.77	<5	53	14	10	88
West Bullsbrook	**SW060**	**25 Jun 2022**	**0967_SW060_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	109	<1	109	7.68	7.66	184	0.12	15	54	14	8	83
West Bullsbrook	**SW060**	**19 Sep 2022**	**0967_SW060_220919**	**Normal**	**EP2212080**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	108	<1	108	6.60	6.86	151	1.91	9	41	13	7	82
West Bullsbrook	**SW060**	**09 Jun 2023**	**0967_SW060_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	111	<1	111	8.35	8.13	151	1.36	90	50	12	20	95
West Bullsbrook	**SW060**	**10 Jun 2023**	**0967_SW060_230610**	**Normal**	**EP2307675**	<0.02	<0.05	<0.05	<0.02	<0.05	0.05	0.05	0.05	<1	105	<1	105	6.46	7.14	112	5.00	58	54	10	16	74
West Bullsbrook	**SW060**	**11 Jun 2023**	**0967_SW060_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	94	<1	94	5.39	5.54	95	1.32	40	40	8	14	58
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_QC120_230612**	**Field Duplicate**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	104	<1	104	6.15	7.05	117	6.82	37	53	13	13	69
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_QC220_230612**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	0.03	<0.05	<0.1													
West Bullsbrook	**SW060**	**12 Jun 2023**	**0967_SW060_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	103	<1	103	6.07	7.09	115	7.74	37	53	13	13	70
West Bullsbrook	**SW060**	**13 Jun 2023**	**0967_SW060_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	0.02	0.02	0.02	<1	103	<1	103	5.94	6.25	106	2.51	43	43	12	13	64
West Bullsbrook	**SW060**	**14 Sep 2023**	**0967_SW060_230914**	**Normal**	**EP2312711**	<0.02	<0.05	<0.05	<0.02	<0.05	0.04	0.04	0.04	<1	74	<1	74	12.3	10.6	356	7.30	39	34	27	10	149
Twin Swamp Nature Reserve	**SW066**	**30 Aug 2017**	**TS01**	**Normal**	**EP1709385**	<0.002	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<1	180	<1	180			205		20	38	17	5	101
Twin Swamp Nature Reserve	**SW066**	**13 Jun 2019**	**0967_SW066_190613**	**Normal**	**EP1905805**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01													
Twin Swamp Nature Reserve	**SW066**	**04 Dec 2019**	**0967_SW066_191204**	**Normal**	**EP1912893**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.32*	0.41	0.41	<1	144	<1	144	29.8	31.0	946	1.87	14	55	86	25	472
Twin Swamp Nature Reserve	**SW066**	**30 Jun 2020**	**0967_SW066_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	90	<1	90	7.16	7.34	151	1.22	53	32	16	8	97
Twin Swamp Nature Reserve	**SW066**	**01 Jul 2020**	**0967_SW066_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	82	<1	82	8.26	7.43	209	5.30	35	33	16	8	98
Twin Swamp Nature Reserve	**SW066**	**02 Jul 2020**	**0967_SW066_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	92	<1	92	9.22	8.13	230	6.28	43	35	20	5	106
Twin Swamp Nature Reserve	**SW066**	**03 Jul 2020**	**0967_SW066_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	0.03	0.03	0.03	<1	82	<1	82	8.90	7.79	230	6.65	37	33	18	7	103
Twin Swamp Nature Reserve	**SW066**	**04 Jul 2020**	**0967_SW066_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	91	<1	91	8.84	8.18	223	3.87	35	37	18	6	108
Twin Swamp Nature Reserve	**SW066**	**22 Oct 2020**	**0967_SW066_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	10	115	<1	125	9.58	10.3	251	3.71	<10	49	24	6	132
Twin Swamp Nature Reserve	**SW066**	**08 Sep 2021**	**0967_SW066_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	0.10	<0.01	<0.01	0.10	<1	70	<1	70	5.47	4.73	120	7.25	33	15	9	6	71
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_QC105_220621**	**Field Duplicate**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	48	<1	48	3.55	4.32	92	9.77	<20	17	8	3	63
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_QC205_220621**	**Interlab Duplicate**	**901657**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.05	<0.05													
Twin Swamp Nature Reserve	**SW066**	**21 Jun 2022**	**0967_SW066_220621**	**Normal**	**EP2207730**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	49	<1	49	3.55	4.21	91	8.58	<20	17	8	2	61
Twin Swamp Nature Reserve	**SW066**	**22 Jun 2022**	**0967_SW066_220622**	**Normal**	**EP2207734**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	93	<1	93	4.54	5.05	95	5.35	<10	31	9	6	60
Twin Swamp Nature Reserve	**SW066**	**23 Jun 2022**	**0967_SW066_220623**	**Normal**	**EP2207824**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	93	<1	93	4.48	5.21	93	7.55	<20	32	9	7	62
Twin Swamp Nature Reserve	**SW066**	**24 Jun 2022**	**0967_SW066_220624**	**Normal**	**EP2207893**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	74	<1	74	4.86	5.02	109	1.61	15	26	10	3	65
Twin Swamp Nature Reserve	**SW066**	**25 Jun 2022**	**0967_SW066_220625**	**Normal**	**EP2207911**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	68	<1	68	4.24	4.26	102	0.23	<20	18	7	5	61
Twin Swamp Nature Reserve	**SW066**	**21 Sep 2022**	**0967_SW066_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	25	<1	25	2.36	2.44	66	1.72	<1	7	4	1	40
Twin Swamp Nature Reserve	**SW066**	**09 Jun 2023**	**0967_SW066_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	89	<1	89	7.84	7.72	190	0.78	34	27	18	6	109
Twin Swamp Nature Reserve	**SW066**	**10 Jun 2023**	**0967_SW066_230610**	**Normal**	**EP2307676**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	94	<1	94	7.34	7.98	168	4.14	35	31	15	6	116
Twin Swamp Nature Reserve	**SW066**	**11 Jun 2023**	**0967_SW066_230611**	**Normal**	**EP2307678**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	101	<1	101	7.30	7.88	163	3.80	33	29	15	6	116
Twin Swamp Nature Reserve	**SW066**	**12 Jun 2023**	**0967_SW066_230612**	**Normal**	**EP2307718**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	101	<1	101	7.59	8.34	174	4.72	32	29	16	9	123
Twin Swamp Nature Reserve	**SW066**	**13 Jun 2023**	**0967_SW066_230613**	**Normal**	**EP2307806**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	97	<1	97	7.55	7.86	174	2.00	34	29	19	6	108
Twin Swamp Nature Reserve	**SW066**	**18 Sep 2023**	**0967_SW066_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	92	<1	92	8.25	7.24	222	6.50	7	20	15	7	111
Twin Swamp Nature Reserve	**SW067**	**30 Aug 2017**	**TS02**	**Normal**	**EP1709385**	<0.002	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<1	106	<1	106			198		23	37	17	6	100
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_QC101_191204**	**Field Duplicate**	**EP1912893**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	116	<1	116	10.2	9.77	258	1.92	27	44	23	8	126
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_QC201_191204**	**Interlab Duplicate**	**692273**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	130					420						
Twin Swamp Nature Reserve	**SW067**	**04 Dec 2019**	**0967_SW067_191204**	**Normal**	**EP1912893**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	121	<1	121	10.1	9.77	254	1.89	27	43	23	8	127
Twin Swamp Nature Reserve	**SW067**	**30 Jun 2020**	**0967_SW067_200630**	**Normal**	**EP2006825**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	87	<1	87	8.38	7.38	209	6.36	36	30	17	7	99
Twin Swamp Nature Reserve	**SW067**	**01 Jul 2020**	**0967_SW067_200701**	**Normal**	**EP2006822**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	92	<1	92	9.15	8.21	229	5.44	41	36	20	6	106
Twin Swamp Nature Reserve	**SW067**	**02 Jul 2020**	**0967_SW067_200702**	**Normal**	**EP2006881**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	96	<1	96	9.01	7.96	225	6.19	36	34	19	7	104
Twin Swamp Nature Reserve	**SW067**	**03 Jul 2020**	**0967_SW067_200703**	**Normal**	**EP2006957**	<0.02	<0.05	<0.05	<0.02	<0.05	*0.10*	0.10	0.10	<1	95	<1	95	9.45	8.03	236	8.12	43	35	19	6	105
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_QC103_200704**	**Field Duplicate**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	98	<1	98	9.08	8.44	225	3.64	37	38	20	6	109
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_QC203_200704**	**Interlab Duplicate**	**730326**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1	<10	120					190						
Twin Swamp Nature Reserve	**SW067**	**04 Jul 2020**	**0967_SW067_200704**	**Normal**	**EP2006964**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	98	<1	98	9.05	8.48	224	3.23	37	38	20	6	110
Twin Swamp Nature Reserve	**SW067**	**22 Oct 2020**	**0967_SW067_201022**	**Normal**	**EP2011545**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	113	<1	113	8.55	9.02	223	2.71	<10	41	21	8	116
Twin Swamp Nature Reserve	**SW067**	**08 Sep 2021**	**0967_SW067_210908**	**Normal**	**EP2110529**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	107	<1	107	8.40	7.61	222	4.96	<20	34	17	8	99
Twin Swamp Nature Reserve	**SW067**	**21 Sep 2022**	**0967_SW067_220921**	**Normal**	**EP2212258**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	116	<1	116	8.22	7.55	202	4.27	10	34	18	6	97
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_QC103_230609**	**Field Duplicate**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	47	<1	47	8.02	8.02	195	<0.01	76	29	18	7	113
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_QC203_230609**	**Interlab Duplicate**	**999535**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1													
Twin Swamp Nature Reserve	**SW067**	**09 Jun 2023**	**0967_SW067_230609**	**Normal**	**EP2307634**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	46	<1	46	7.52	7.85	180	2.15	73	28	17	7	112
Twin Swamp Nature Reserve	**SW067**	**18 Sep 2023**	**0967_SW067_230918**	**Normal**	**EP2312965**	<0.02	<0.05	<0.05	<0.02	<0.05	<0.01	<0.01	<0.01	<1	111	<1	111	7.55	6.72	189	5.77	<10	24	15	8	94

Environmental Standards
HEPA, January 2020, PFAS NEMP 2020 Drinking Water
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Recreational Water

Notes:
First time detection of PFOA or PFHxS+PFOS
New exceedance of guideline value

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
On-site drainage channels	SD002	19/09/2016	PD_SS02	Normal	EP1608751	0.0012		0.0098		0.0484		<0.001	0.0006	0.0015	0.0004	0.0008						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	5/03/2019	0967_SD002_190305	Normal	EP1902013	0.0005	0.0005	0.0038	0.0004	0.0343	0.0004	<0.001	<0.0002	0.0006	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	13/06/2019	0967_QC112_190613	Field Duplicate	EP1905805	<0.0002	<0.0002	0.0022	<0.0002	0.0396	0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	13/06/2019	0967_QC212_190613	Interlab Duplicate	228248	<0.0002	<0.0002	0.0016	<0.0002	0.034	<0.0004	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.01	<0.0002	<0.0002	<0.0002	<0.0002
On-site drainage channels	SD002	13/06/2019	0967_SD002_190613	Normal	EP1905805	<0.0002	<0.0002	0.0009	<0.0002	0.0170	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	14/06/2019	0967_SD002_190614	Normal	EP1905807	<0.0002	0.0002	0.0024	0.0003	0.0380	0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	15/06/2019	0967_SD002_190615	Normal	EP1905844	0.0004	0.0002	0.0038	0.0004	0.0750	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	16/06/2019	0967_SD002_190616	Normal	EP1905847	<0.0002	<0.0002	0.0009	<0.0002	0.0190	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	17/06/2019	0967_SD002_190617	Normal	EP1905846	<0.0002	<0.0002	0.0011	<0.0002	0.0226	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	28/10/2019	0967_SD002_0.00-0.10_191	Normal	EP1911089	0.0002	<0.0002	0.0011	<0.0002	0.0129	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	12/05/2020	0967_SD002_0.00-0.10_200	Normal	EP2004830	0.0003	<0.0002	0.0028	0.0002	0.0468	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	1/07/2020	0967_QC102_200701	Field Duplicate	EP2006823	0.0004	0.0004	0.0032	0.0004	0.0413	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	1/07/2020	0967_QC202_01072020	Interlab Duplicate	729577	<0.005	<0.005	<0.005	<0.005	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD002	1/07/2020	0967_SD002_200701	Normal	EP2006823	0.0004	0.0003	0.0030	0.0004	0.0424	0.0005	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	2/07/2020	0967_SD002_200702	Normal	EP2006907	0.0002	0.0002	0.0019	0.0003	0.0296	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	3/07/2020	0967_SD002_200703	Normal	EP2006943	0.0004	0.0005	0.0051	0.0005	0.136	<0.0002	0.002	0.0003	0.0008	0.0003	0.0008	0.0008	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	4/07/2020	0967_SD002_200704	Normal	EP2006972	<0.0005	<0.0005	0.0026	<0.0005	0.0951	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	13/10/2020	0967_SD002_201013	Normal	EP2011098	0.0007	0.0007	0.0100	0.0019	0.238	0.0017	<0.001	0.0002	0.0008	<0.0002	0.0010	0.0010	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	29/04/2021	0967_SD002_210429	Normal	EP2104726	0.0005	0.0003	0.0026	0.0004	0.0498	0.0006	<0.001	<0.0002	<0.0002	<0.0002	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	31/05/2021	0967_SD002_210531	Normal	EP2106117	0.0010	0.0007	0.0062	0.0008	0.132	0.0013	<0.001	<0.0002	0.0005	<0.0002	0.0006	0.0005	0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	20/09/2021	0967_SD002_210920	Normal	EP2111138	<0.0002	<0.0002	0.0006	<0.0002	0.0110	0.0012	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0016	0.0018	0.0006	<0.0005	<0.0005	<0.0005	0.0011	<0.0005
On-site drainage channels	SD002	28/04/2022	0967_SD002_220428	Normal	EP2204965	<0.0002	<0.0002	0.0004	<0.0002	0.0183	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	21/06/2022	0967_SD002_220621	Normal	EP2207629	<0.0002	<0.0002	0.0021	0.0004	0.0551	0.0005	<0.001	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	22/06/2022	0967_SD002_220622	Normal	EP2207735	0.0007	0.0008	0.0075	0.0009	0.0661	0.0009	<0.001	<0.0002	0.0008	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	23/06/2022	0967_SD002_220623	Normal	EP2207825	<0.0002	<0.0002	0.0011	<0.0002	0.0180	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	24/06/2022	0967_QC114_220624	Field Duplicate	EP2207892	<0.0002	<0.0002	0.0010	0.0002	0.0271	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	24/06/2022	0967_QC214_220624	Interlab Duplicate	902459	<0.0004	<0.0004	<0.0004	<0.0004	0.0074	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.016	<0.0005	<0.0005
On-site drainage channels	SD002	24/06/2022	0967_SD002_220624	Normal	EP2207892	<0.0002	<0.0002	0.0015	<0.0002	0.0204	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	25/06/2022	0967_SD002_220625	Normal	EP2207910	<0.0002	0.0002	0.0022	0.0003	0.0373	0.0006	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	26/09/2022	0967_SD002_220926	Normal	EP2212404	0.0015	0.0020	0.0093	0.0008	0.140	0.0025	<0.001	0.0004	0.0011	0.0002	0.0006	0.0002	0.0005	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	17/04/2023	0967_SD002_230417	Normal	EP2304862	0.0003	<0.0002	0.0010	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	9/06/2023	0967_SD002_230609	Normal	EP2307642	0.0004	0.0003	0.0022	0.0003	0.0252	0.0006	<0.001	<0.0002	0.0003	<0.0002	0.0003	0.0003	0.0029	0.0044	0.0027	0.0023	<0.0005	<0.0005	0.0019	0.0020
On-site drainage channels	SD002	10/06/2023	0967_SD002_230610	Normal	EP2307674	<0.0002	<0.0002	0.0004	<0.0002	0.0135	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	0.0009	<0.0005
On-site drainage channels	SD002	11/06/2023	0967_QC109_230611	Field Duplicate	EP2307679	0.0003	0.0002	0.0022	0.0003	0.0294	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	11/06/2023	0967_QC209_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD002	11/06/2023	0967_SD002_230611	Normal	EP2307679	<0.0002	<0.0002	0.0012	<0.0002	0.0134	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD002	12/06/2023	0967_SD002_230612	Normal	EP2307716	<0.0002	<0.0002	0.0010	<0.0002	0.0188	0.0004	<0.001	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.0015	0.0020	0.0007	0.0007	<0.0005	<0.0005	0.0022	0.0011
On-site drainage channels	SD002	13/06/2023	0967_SD002_230613	Normal	EP2307799	<0.0002	<0.0002	0.0002	<0.0002	0.0050	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	0.0016	<0.0005
On-site drainage channels	SD002	25/09/2023	0967_SD002_230925	Normal	EP2313265	<0.0002	<0.0002	0.0010	<0.0002	0.0106	0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	0.0005	<0.0005
On-site drainage channels	SD007	19/09/2016	PD_SS07	Normal	EP1608751	0.0471		0.319		2.15		0.008	0.0214	0.104	0.0058	0.0237						<0.0005	0.0016	<0.0005	<0.0005
On-site drainage channels	SD007	6/03/2019	0967_SD007_190306	Normal	EP1902092	0.0207	0.0287	0.220	0.0216	1.48	0.0299	0.014	0.0126	0.0456	0.0048	0.0138	<0.0002	0.0010	0.0023	0.0006	<0.0005	<0.0005	0.0020	0.0015	<0.0005
On-site drainage channels	SD007	13/06/2019	0967_SD007_190613	Normal	EP1905805	0.0016	0.0018	0.0227	0.0042	1.51	0.0310	0.001	0.0019	0.0084	0.0010	0.0032	0.0004	0.0016	0.0042	0.0015	0.0007	<0.0005	<0.0005	0.0033	0.0009
On-site drainage channels	SD007	14/06/2019	0967_SD007_190614	Normal	EP1905807	0.0038	0.0051	0.0482	0.0049	1.02	0.0269	0.002	0.0039	0.0180	0.0022	0.0055	0.0003	0.0015	0.0046	0.0016	0.0008	<0.0005	<0.0005	0.0021	0.0008
On-site drainage channels	SD007	15/06/2019	0967_SD007_190615	Normal	EP1905844	0.0044	0.0043	0.0530	0.0080	0.991	0.0154	0.002	0.0040	0.0171	0.0017	0.0049	0.0002	0.0010	0.0026	0.0014	0.0009	<0.0005	0.0015	0.0024	<0.0005
On-site drainage channels	SD007	16/06/2019	0967_SD007_190616	Normal	EP1905847	0.0028	0.0036	0.0406	0.0104	1.07	0.0188	0.002	0.0031	0.0136	0.0017	0.0055	0.0002	0.0013	0.0032	0.0013	0.0008	<0.0005	0.0012	0.0029	0.0005
On-site drainage channels	SD007	17/06/2019	0967_SD007_190617	Normal	EP1905846	0.0081	0.0098	0.161	0.0228	6.18	0.0452	0.004	0.0064	0.0314	0.0039	0.0158	0.0007	0.0025	0.0066	0.0038	0.0027	<0.0005	0.0037	0.0068	0.0011
On-site drainage channels	SD007	29/10/2019	0967_SD007_0.00-0.10_191	Normal	EP1911154	0.0115	0.0113	0.0975	0.0112	1.32	0.0384	0.004	0.0063	0.0264	0.0019	0.0054	0.0002	0.0004	0.0014	0.0003	<0.0005	<0.0005	<0.0005	0.0006	<0.0005
On-site drainage channels	SD007	12/05/2020	0967_SD007_0.00-0.10_200	Normal	EP2004830	0.0050	0.0053	0.0764	0.0135	3.38	0.100	0.002	0.0030	0.0166	0.0014	0.0084	<0.0005	0.0022	0.0075	0.0027	0.0013	<0.0005	0.0020	0.0056	<0.0005
On-site drainage channels	SD007	1/07/2020	0967_SD007_200701	Normal	EP2006823	0.0053	0.0074	0.0777	0.0245	3.40	0.0349	0.002	0.0027	0.0134	0.0019	0.0092	<0.0002	0.0020	0.0105	0.0051	0.0024	<0.0005	0.0035	0.0074	0.0009
On-site drainage channels	SD007	2/07/2020	0967_SD007_200702	Normal	EP2006907	0.0039	0.0038	0.0516	0.0082	2.03	0.0236	0.002	0.0033	0.0143	0.0014	0.0052	0.0006	0.0013	0.0020	0.0007	<0.0005	<0.0005	0.0005	0.0012	<0.0005
On-site drainage channels	SD007	3/07/2020	0967_SD007_200703	Normal	EP2006943	0.0076	0.0066	0.0671	0.0032	0.854	0.0027	0.006	0.0054	0.0191	0.0012	0.0032	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD007	4/07/2020	0967_SD007_200704	Normal	EP2006972	0.0548	0.0769	0.779	0.189	22.2	0.704	0.029	0.0355	0.182	0.0221	0.0714	<0.0025	0.0194	0.0332	0.0083	<0.0062	<0.0025	0.0101	0.0272	0.0083
On-site drainage channels	SD007	13/10/2020	0967_SD007_201013	Normal	EP2011098	0.0200	0.0234	0.372	0.0984	18.8	0.279	0.010	0.0079	0.0761	0.0090	0.0413	<0.0010	0.0053	0.0211	<0.0010	<0.0025	<0.0010	0.0053	0.0142	0.0021
On-site drainage channels	SD007	29/04/2021	0967_SD007_210429	Normal	EP2104726	0.0136	0.0118	0.176	0.0237	2.75	0.0587	0.008	0.0066	0.0214	0.0018	0.0101	0.0007	0.0009	0.0027	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD007	31/05/2021	0967_SD007_210531	Normal	EP2106117	0.0149	0.0206	0.238	0.0533	7.33	0.194	0.005	0.0121	0.0549	0.0056	0.0247	0.0013	0.0084	0.0400	0.0215	0.0132	<0.0005	0.0030	0.0143	0.0056
On-site drainage channels	SD007	1/06/2021	0967_SD007_210601	Normal	EP2106133	0.0133	0.0271	0.317	0.110	8.48	0.349	0.003	0.0084	0.0366	0.0062	0.0272	0.0014	0.0071	0.0308	0.0135	0.0211	<0.0005	0.0043	0.0209	0.0066
On-site drainage channels	SD007	2/06/2021	0967_SD007_210602	Normal	EP2106196	0.0050	0.0072	0.0933	0.0691	5.45	0.150	0.001	0.0044	0.0156	0.0023	0.0096	0.0008	0.0027	0.0104	0.0033	0.0022	<0.0005	0.0012	0.0081	0.0042
On-site drainage channels	SD007	3/06/2021	0967_SD007_210603	Normal	EP2106263	0.0078	0.0143	0.170	0.0591	5.48	0.119	0.007	0.0084	0.0293	0.0044	0.0163	0.0010	0.0047	0.0186	0.0093	0.0084	<0.0010	0.0010	0.0144	0.0022
On-site drainage channels	SD007	4/06/2021	0967_SD007_210604	Normal	EP2106322	0.0137	0.0164	0.207	0.0340	5.83	0.363	0.006	0.0121	0.0454	0.0062	0.0211	0.0012	0.0045	0.0149	0.0125	0.0129	<0.0005	0.0029	0.0128	0.0031
On-site drainage channels	SD007	20/09/2021	0967_SD007_210920	Normal	EP2111138	0.0289	0.0768	0.772	0.338	36.3	1.64	0.009	0.0135	0.0639	0.0153	0.0770	0.0029	0.0138	0.0680	0.0248	0.0267	<0.0005	0.0125	0.0341	0.0073
On-site drainage channels	SD007	28/04/2022	0967_SD007_220428	Normal	EP2204965	0.0032	0.0037	0.0484	0.0086	1.09	0.0291	0.008	0.0047	0.0070	0.0005	0.0030	0.0004	0.0009	0.0013	0.0004	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD007	21/06/2022	0967_SD007_220621	Normal	EP2207629	0.0089	0.0123	0.224	0.0539	8.76	0.265	0.005	0.0042	0.0151	0.0030	0.0174	0.0012	0.0054	0.0219	0.0088	0.0089	<0.0005	0.0044	0.0129	0.0057
On-site drainage channels	SD007	22/06/2022	0967_SD007_220622	Normal	EP2207735	0.0059	0.0079	0.109	0.0201	3.38	0.191	0.004	0.0036	0.0132	0.0018	0.0081	<0.0005	0.0030	0.0141	0.0055	0.0048	<0.0005	0.0024	0.0056	0.0045
On-site drainage channels	SD007	23/06/2022	0967_SD007_220623	Normal	EP2207825	0.0093	0.0195	0.210	0.0556	7.52	0.213	0.004	0.0047	0.0159	0.0034	0.0170	0.0011	0.0052	0.0178	0.0098	0.0082	<0.0005	0.0027	0.0075	0.0019
On-site drainage channels	SD007	24/06/2022	0967_SD007_220624	Normal	EP2207892	0.0055	0.0082	0.113	0.0210	6.13	0.156	0.003	0.0034	0.0114	0.0017	0.0086	0.0009	0.0039	0.0197	0.0082	0.0068	<0.0005	0.0027	0.0093	0.0037
On-site drainage channels	SD007	25/06/2022	0967_SD007_220625	Normal	EP2207910	0.0115	0.0200	0.245	0.0329	7.15	0.239	0.006	0.0070	0.0246	0.0026	0.0170	0.0014	0.0051	0.0244	0.0084	0.0078	<0.0005	0.0044	0.0106	0.0034
On-site drainage channels	SD007	26/09/2022	0967_SD007_220926	Normal	EP2212404	0.0194	0.0394	0.610	0.117	18.5	0.516	0.010	0.0171	0.0642	0.0086	0.0439	0.0023	0.0048	0.0255	0.0101	0.0106	<0.0010	0.0131	0.0110	<0.0010
On-site drainage channels	SD007	24/04/2023	0967_SD007_230424	Normal	EP2305260	0.0081	0.0112	0.185	0.0448	4.36	0.135	0.002	0.0035	0.0136	0.0029	0.0141	0.0024	0.0075	0.0238	0.0130	0.0123	<0.0005	0.0032	0.0117	0.0008
On-site drainage channels	SD007	9/06/2023	0967_SD007_230609	Normal	EP2307642	0.0109	0.0159	0.218	0.0705	8.56	0.254	0.004	0.0056	0.0237	0.0048	0.0228	0.0021	0.0074	0.0209	0.0104	0.0096	<0.0005	0.0048	0.0172	<0.0005
On-site drainage channels	SD007	10/06/2023	0967_SD007_230610	Normal	EP2307674	0.0028	0.0048	0.0685	0.0136	2.11	0.0234	0.001	0.0018	0.0060	0.0012	0.0053	0.0008	0.0015	0.0026	0.0011	0.0010	<0.0005	0.0008	0.0028	<0.0005
On-site drainage channels	SD007	11/06/2023	0967_SD007_230611	Normal	EP2307679	0.0030	0.0040	0.0686	0.0132	2.17	0.192	<0.001	0.0016	0.0083	0.0012	0.0056	0.0006	0.0021	0.0135	0.0107	0.0108	<0.0005	0.0008	0.0068	0.0021
On-site drainage channels	SD007	12/06/2023	0967_SD007_230612	Normal	EP2307716	0.0038	0.0077	0.0814	0.0198	2.81	0.0862	0.002	0.0027	0.0088	0.0015	0.0078	0.0005	0.0022	0.0115	0.0055	0.0034	<0.0005	0.0015	0.0080	0.0024
On-site drainage channels	SD007	13/06/2023	0967_SD007_230613	Normal	EP2307799	0.0064	0.0086	0.128	0.0306	5.28	0.160	0.003	0.0040	0.0193	0.0026	0.0133	0.0009	0.0043	0.0141	0.0058	0.0044	<0.0005	0.0021	0.0083	0.0006
On-site drainage channels	SD007	25/09/2023	0967_SD007_230925	Normal	EP2313265	0.0285	<0.0435	0.321	0.0452	7.02	0.204	0.003	0.0065	0.0479	0.0138	0.0548	0.0017	0.0042	0.0254	0.0156	0.0077	<0.0005	0.0063	0.0140	0.0017
On-site drainage channels	SD013	19/09/2016	PD_SS13	Normal	EP1608751	0.0011		0.0137		0.124		<0.001	0.0008	0.0034	0.0004	0.0011						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	6/03/2019	0967_QC104_190306	Field Duplicate	EP1902092	0.0024	0.0024	0.0252	0.0018	0.194	0.0083	<0.001	0.0025	0.0085	0.0008	0.0019	0.0002	0.0003	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	6/03/2019	0967_QC204_190306	Interlab Duplicate	223429	0.0030	0.0034	0.038	0.0032	0.39	0.02	0.0020	0.0022	0.0077	0.0008	0.0027	0.0004	<0.0005	0.0006	<0.0005	<0.005	<0.0001	<0.0001	0.0001	<0.0001
On-site drainage channels	SD013	6/03/2019	0967_SD013_190306	Normal	EP1902092	0.0034	0.0033	0.0322	0.0013	0.177	0.0051	0.002	0.0030	0.0112	0.0007	0.0024	0.0002	0.0003	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
On-site drainage channels	SD013	28/10/2019	0967_SD013_0.00-0.10_191	Normal	EP1911089	0.0016	0.0018	0.0166	0.0015	0.160	0.0105	0.001	0.0014	0.0061	0.0006	0.0018	<0.0002	0.0003	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	12/05/2020	0967_SD013_0.00-0.10_200	Normal	EP2004830	0.0024	0.0030	0.0306	0.0014	0.185	0.0184	0.001	0.0021	0.0119	0.0011	0.0036	0.0003	0.0004	0.0009	0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	13/10/2020	0967_SD013_201013	Normal	EP2011098	0.0015	0.0016	0.0225	0.0013	0.230	0.0091	0.002	0.0009	0.0056	0.0005	0.0016	<0.0002	0.0002	0.0006	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	29/04/2021	0967_SD013_210429	Normal	EP2104726	0.0006	0.0012	0.0397	0.0041	0.371	0.0150	<0.001	0.0006	0.0034	0.0006	0.0045	0.0003	0.0004	0.0008	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	20/09/2021	0967_SD013_210920	Normal	EP2111138	0.0006	0.0010	0.0162	0.0018	0.276	0.0166	<0.001	0.0005	0.0022	0.0003	0.0013	<0.0002	0.0004	0.0008	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	28/04/2022	0967_SD013_220428	Normal	EP2204965	0.0063	0.0085	0.0423	0.0016	0.252	0.0062	0.002	0.0037	0.0172	0.0010	0.0020	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	26/09/2022	0967_SD013_220926	Normal	EP2212404	0.0011	0.0019	0.0252	0.0021	0.416	0.0373	0.002	0.0012	0.0040	0.0004	0.0018	<0.0002	0.0005	0.0011	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD013	24/04/2023	0967_SD013_230424	Normal	EP2305260	0.0002	0.0004	0.0163	0.0031	0.409	0.0106	<0.001	<0.0002	0.0006	0.0002	0.0022	0.0004	0.0004	0.0008	0.0004	<0.0005	<0.0005	<0.0005	0.0007	<0.0005
On-site drainage channels	SD013	25/09/2023	0967_SD013_230925	Normal	EP2313265	0.0005	0.0008	0.0108	0.0011	0.274	0.0078	<0.001	0.0003	0.0018	<0.0002	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	19/09/2016	PD_SS15	Normal	EP1608751	<0.0002		0.0019		0.0128		<0.001	<0.0002	0.0004	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	9/10/2017	PD_SS15	Normal	EP1711281																				
On-site drainage channels	SD015	6/03/2019	0967_SD015_190306	Normal	EP1902092	<0.0002	0.0002	0.0030	0.0002	0.0308	0.0013	<0.001	0.0004	0.0019	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	13/06/2019	0967_SD015_190613	Normal	EP1905805	0.0004	0.0005	0.0049	0.0004	0.0667	0.0016	<0.001	0.0004	0.0012	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	14/06/2019	0967_SD015_190614	Normal	EP1905807	0.0004	0.0004	0.0064	0.0007	0.101	0.0029	<0.001	0.0002	0.0012	<0.0002	0.0007	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	15/06/2019	0967_SD015_190615	Normal	EP1905844	0.0003	0.0003	0.0039	0.0002	0.0488	0.0010	<0.001	<0.0002	0.0009	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	16/06/2019	0967_SD015_190616	Normal	EP1905847	<0.0002	<0.0002	0.0016	<0.0002	0.0200	0.0004	<0.001	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	17/06/2019	0967_SD015_190617	Normal	EP1905846	0.0002	<0.0002	0.0022	<0.0002	0.0212	0.0004	<0.001	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	28/10/2019	0967_SD015_0.00-0.10_191	Normal	EP1911089	0.0014	0.0017	0.0162	0.0008	0.0651	0.0030	<0.001	0.0010	0.0058	0.0004	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	12/05/2020	0967_SD015_0.00-0.10_200	Normal	EP2004830	0.0019	0.0015	0.0174	0.0014	0.214	0.0205	0.001	0.0016	0.0073	0.0006	0.0026	<0.0002	0.0003	0.0008	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	1/07/2020	0967_SD015_200701	Normal	EP2006823	0.0006	0.0005	0.0057	0.0005	0.0918	0.0026	<0.001	0.0006	0.0018	0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	2/07/2020	0967_SD015_200702	Normal	EP2006907	0.0003	0.0003	0.0028	0.0002	0.0334	0.0009	<0.001	0.0003	0.0010	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	3/07/2020	0967_QC102_200703	Field Duplicate	EP2006943	<0.0002	<0.0002	0.0009	0.0002	0.0088	0.0008	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	3/07/2020	0967_QC202_200703	Interlab Duplicate	730322	<0.005	<0.005	0.0097	<0.005	0.23	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD015	3/07/2020	0967_SD015_200703	Normal	EP2006943	0.0004	0.0004	0.0054	0.0005	0.0784	0.0020	<0.001	0.0003	0.0012	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	4/07/2020	0967_SD015_200704	Normal	EP2006972	<0.0005	<0.0005	0.0015	<0.0005	0.0272	0.0028	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	13/10/2020	0967_SD015_201013	Normal	EP2011098	<0.0002	<0.0002	0.0009	0.0002	0.0154	0.0011	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	29/04/2021	0967_SD015_210429	Normal	EP2104726	<0.0002	<0.0002	0.0008	0.0002	0.0150	0.0016	<0.001	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	31/05/2021	0967_SD015_210531	Normal	EP2106117	0.0006	0.0006	0.0092	0.0008	0.132	0.0052	<0.001	0.0006	0.0017	<0.0002	0.0008	<0.0002	<0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	1/06/2021	0967_QC102_210601	Field Duplicate	EP2106133	0.0006	0.0007	0.0092	0.0011	0.191	0.0058	<0.001	0.0006	0.0016	<0.0002	0.0011	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	1/06/2021	0967_QC202_210601	Interlab Duplicate	800042	<0.005	<0.005	0.0085	<0.005	0.16	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD015	1/06/2021	0967_SD015_210601	Normal	EP2106133	0.0007	0.0008	0.0102	0.0014	0.219	0.0097	<0.001	0.0007	0.0018	0.0002	0.0011	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	2/06/2021	0967_SD015_210602	Normal	EP2106196	0.0004	0.0005	0.0057	0.0004	0.0617	0.0024	<0.001	0.0005	0.0013	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	3/06/2021	0967_SD015_210603	Normal	EP2106263	0.0006	0.0007	0.0072	0.0008	0.151	0.0025	<0.001	0.0008	0.0018	0.0002	0.0008	<0.0002	<0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	4/06/2021	0967_QC114_210604	Field Duplicate	EP2106322	0.0005	0.0005	0.0065	0.0005	0.0901	0.0039	<0.001	0.0004	0.0014	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	4/06/2021	0967_QC214_210604	Interlab Duplicate	801498	<0.005	<0.005	0.0080	<0.005	0.13	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD015	4/06/2021	0967_SD015_210604	Normal	EP2106322	0.0005	0.0006	0.0064	0.0004	0.0807	0.0035	<0.001	0.0005	0.0014	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	9/08/2021	0967_SD015_210809	Normal	EP2109323	<0.0002	<0.0002	0.0024	0.0004	0.0784	0.0072	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	24/08/2021	0967_SD015_210824	Normal	EP2109842	0.0002	0.0003	0.0045	0.0006	0.100	0.0060	<0.001	<0.0002	0.0006	<0.0002	0.0004	<0.0002	0.0003	0.0008	0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	20/09/2021	0967_SD015_210920	Normal	EP2111138	0.0003	0.0006	0.0098	0.0010	0.132	0.0035	<0.001	0.0004	0.0010	<0.0002	0.0006	<0.0002	<0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	28/04/2022	0967_SD015_220428	Normal	EP2204965	0.0019	0.0024	0.0153	0.0007	0.0922	0.0026	0.001	0.0018	0.0057	0.0005	0.0012	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	21/06/2022	0967_SD015_220621	Normal	EP2207629	<0.0002	<0.0002	0.0024	0.0002	0.0364	0.0013	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	22/06/2022	0967_SD015_220622	Normal	EP2207735	0.0003	0.0004	0.0075	0.0010	0.118	0.0056	<0.001	0.0003	0.0009	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	23/06/2022	0967_SD015_220623	Normal	EP2207825	<0.0002	<0.0002	0.0018	<0.0002	0.0389	0.0011	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	24/06/2022	0967_SD015_220624	Normal	EP2207892	0.0002	0.0003	0.0041	0.0005	0.109	0.0031	<0.001	0.0004	0.0008	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	26/09/2022	0967_SD015_220926	Normal	EP2212404	0.0004	0.0006	0.0068	0.0003	0.0417	0.0012	<0.001	0.0005	0.0014	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	24/04/2023	0967_SD015_230424	Normal	EP2305260	0.0026	0.0038	0.0316	0.0018	0.194	0.0063	0.001	0.0016	0.0077	0.0009	0.0020	<0.0002	0.0002	0.0005	0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	9/06/2023	0967_SD015_230609	Normal	EP2307642	0.0003	0.0003	0.0056	0.0004	0.0933	0.0031	<0.001	0.0003	0.0009	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	10/06/2023	0967_SD015_230610	Normal	EP2307674	<0.0002	<0.0002	0.0005	<0.0002	0.0116	0.0007	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	11/06/2023	0967_SD015_230611	Normal	EP2307679	0.0003	0.0003	0.0057	0.0004	0.0655	0.0019	<0.001	0.0004	0.0009	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	12/06/2023	0967_SD015_230612	Normal	EP2307716	0.0002	0.0003	0.0024	0.0002	0.0268	0.0004	<0.001	0.0003	0.0008	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	13/06/2023	0967_SD015_230613	Normal	EP2307799	0.0005	0.0006	0.0085	0.0008	0.114	0.0057	<0.001	0.0005	0.0014	<0.0002	0.0009	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD015	25/09/2023	0967_SD015_230925	Normal	EP2313265	0.0002	0.0003	0.0039	0.0002	0.0182	0.0004	<0.001	<0.0002	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	19/09/2016	PD_SS18	Normal	EP1608751	<0.0002		0.0011		0.0105		<0.001	<0.0002	0.0002	<0.0002	0.0003						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	19/09/2016	SS_FD02	Field Duplicate	EP1608751	<0.0002		0.0009		0.0117		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	19/09/2016	SS_FS02	Interlab Duplicate	186091			0.0006		0.012						0.0001							<0.0001	<0.0001	
On-site drainage channels	SD018	5/03/2019	0967_SD018_190305	Normal	EP1902013	<0.0002	<0.0002	0.0004	<0.0002	0.0090	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	6/03/2019	0967_SD018_190306	Normal	EP1902092	<0.0002	<0.0002	0.0006	<0.0002	0.0277	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	28/10/2019	0967_SD018_0.00-0.10_191	Normal	EP1911089	0.0002	<0.0002	0.0030	0.0003	0.0399	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	12/05/2020	0967_SD018_0.00-0.10_200	Normal	EP2004830	0.0002	<0.0002	0.0028	0.0009	0.0986	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	4/07/2020	0967_SD018_200704	Normal	EP2006972	<0.0005	<0.0005	0.0035	<0.0005	0.0567	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	13/10/2020	0967_SD018_201013	Normal	EP2011098	<0.0002	<0.0002	0.0048	0.0019	0.117	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	29/04/2021	0967_SD018_210429	Normal	EP2104726	<0.0002	<0.0002	0.0049	0.0019	0.142	<0.0002	<0.001	<0.0002	0.0004	<0.0002	0.0003	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	20/09/2021	0967_SD018_210920	Normal	EP2111138	<0.0002	<0.0002	0.0049	0.0008	0.0675	0.0003	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	21/04/2022	0967_SD018_220421	Normal	EP2204669	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	26/09/2022	0967_SD018_220926	Normal	EP2212404	0.0002	0.0004	0.0098	0.0012	0.108	0.0007	<0.001	0.0002	0.0010	<0.0002	0.0011	<0.0002	<0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	12/04/2023	0967_SD018_230412	Normal	EP2304598	0.0007	0.0010	0.0175	0.0004	0.0231	0.0011	<0.001	0.0010	0.0044	0.0003	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD018	25/09/2023	0967_SD018_230925	Normal	EP2313265	<0.0002	<0.0002	0.0003	<0.0002	0.0058	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	19/09/2016	PD_SS20	Normal	EP1608751	<0.0002		0.0016		0.0108		<0.001	<0.0002	0.0003	<0.0002	0.0002						<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	9/10/2017	PD_SS20	Normal	EP1711281																				
On-site drainage channels	SD020	5/03/2019	0967_SD020_190305	Normal	EP1902013	0.0003	0.0003	0.0039	0.0003	0.0108	<0.0002	<0.001	0.0003	0.0011	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	13/06/2019	0967_SD020_190613	Normal	EP1905805	0.0002	<0.0002	0.0014	<0.0002	0.0160	0.0002	<0.001	<0.0002	0.0004	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	14/06/2019	0967_QC116_190614	Field Duplicate	EP1905807	<0.0002	<0.0002	0.0004	<0.0002	0.0044	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	14/06/2019	0967_QC216_190614	Interlab Duplicate	228247	0.0001	<0.0001	0.0006	<0.0001	0.0071	<0.0002	<0.0002	<0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
On-site drainage channels	SD020	14/06/2019	0967_SD020_190614	Normal	EP1905807	<0.0002	<0.0002	0.0003	<0.0002	0.0050	<0.0002	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	15/06/2019	0967_SD020_190615	Normal	EP1905844	<0.0002	<0.0002	0.0007	<0.0002	0.0106	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	16/06/2019	0967_QC125_190616	Field Duplicate	EP1905847	<0.0002	<0.0002	0.0004	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	16/06/2019	0967_QC225_190616	Interlab Duplicate	228321	0.0002	0.0002	0.0066	0.0004	0.019	<0.0002	<0.0002	<0.0002	0.0009	<0.0001	0.0004	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
On-site drainage channels	SD020	16/06/2019	0967_SD020_190616	Normal	EP1905847	<0.0002	<0.0002	0.0037	0.0002	0.0132	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	17/06/2019	0967_SD020_190617	Normal	EP1905846	<0.0002	<0.0002	0.0009	<0.0002	0.0034	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	28/10/2019	0967_SD020_0.00-0.10_191	Normal	EP1911089	<0.0002	<0.0002	0.0003	<0.0002	0.0054	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
On-site drainage channels	SD020	12/05/2020	0967_SD020_0.00-0.10_200	Normal	EP2004830	0.0010	0.0004	0.0049	0.0002	0.0188	<0.0002	<0.001	0.0002	0.0010	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	1/07/2020	0967_SD020_200701	Normal	EP2006823	<0.0002	<0.0002	0.0020	<0.0002	0.0059	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	2/07/2020	0967_QC103_200702	Field Duplicate	EP2006907	<0.0002	<0.0002	0.0007	<0.0002	0.0059	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	2/07/2020	0967_QC203_200702	Interlab Duplicate	729906	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	2/07/2020	0967_SD020_200702	Normal	EP2006907	<0.0002	<0.0002	0.0006	<0.0002	0.0094	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	3/07/2020	0967_SD020_200703	Normal	EP2006943	<0.0002	<0.0002	0.0015	0.0002	0.0178	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	4/07/2020	0967_SD020_200704	Normal	EP2006972	<0.0005	<0.0005	0.0055	<0.0005	0.0158	<0.0005	<0.001	<0.0005	0.0010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	13/10/2020	0967_SD020_201013	Normal	EP2011098	<0.0002	<0.0002	0.0004	<0.0002	0.0119	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	20/04/2021	0967_SD020_210420	Normal	EP2104292	<0.0002	<0.0002	0.0013	<0.0002	0.0162	0.0003	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	31/05/2021	0967_SD020_210531	Normal	EP2106117	<0.0002	<0.0002	0.0008	<0.0002	0.0131	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	1/06/2021	0967_SD020_210601	Normal	EP2106133	<0.0002	<0.0002	0.0011	<0.0002	0.0173	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	2/06/2021	0967_QC106_210602	Field Duplicate	EP2106196	<0.0002	<0.0002	0.0009	<0.0002	0.0181	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	2/06/2021	0967_QC206_210602	Interlab Duplicate	800405	<0.005	<0.005	<0.005	<0.005	0.0100	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	2/06/2021	0967_SD020_210602	Normal	EP2106196	<0.0002	<0.0002	0.0009	<0.0002	0.0099	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	3/06/2021	0967_QC110_210603	Field Duplicate	EP2106263	<0.0002	<0.0002	0.0010	<0.0002	0.0156	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	3/06/2021	0967_QC210_210603	Interlab Duplicate	800794	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	3/06/2021	0967_SD020_210603	Normal	EP2106263	0.0002	0.0003	0.0028	0.0003	0.0304	0.0011	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	4/06/2021	0967_SD020_210604	Normal	EP2106322	<0.0002	<0.0002	0.0018	0.0002	0.0188	0.0008	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	9/08/2021	0967_QC101_210809	Field Duplicate	EP2109323	<0.0002	<0.0002	0.0009	<0.0002	0.0206	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	9/08/2021	0967_QC201_210809	Interlab Duplicate	267025	<0.0001	<0.0001	0.0011	<0.0002	0.027	<0.0002	<0.0002	<0.0002	0.0003	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002
On-site drainage channels	SD020	9/08/2021	0967_SD020_210809	Normal	EP2109323	<0.0002	<0.0002	0.0010	<0.0002	0.0179	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	24/08/2021	0967_QC101_210824	Field Duplicate	EP2109842	<0.0002	<0.0002	0.0014	<0.0002	0.0167	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	24/08/2021	0967_QC201_210824	Interlab Duplicate	267713	<0.0001	<0.0001	0.0009	0.0001	0.011	<0.0002	<0.0002	<0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0002	<0.0002
On-site drainage channels	SD020	24/08/2021	0967_SD020_210824	Normal	EP2109842	<0.0002	<0.0002	0.0008	<0.0002	0.0089	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	20/09/2021	0967_SD020_210920	Normal	EP2111138	<0.0002	<0.0002	0.0026	0.0004	0.0256	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	21/04/2022	0967_SD020_220421	Normal	EP2204669	<0.0002	<0.0002	0.0003	<0.0002	0.0114	<0.0002	<0.001	<0.0002	0.0007	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	21/06/2022	0967_SD020_220621	Normal	EP2207629	<0.0002	<0.0002	0.0021	0.0004	0.0743	0.0010	<0.001	<0.0002	0.0004	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	22/06/2022	0967_SD020_220622	Normal	EP2207735	<0.0002	<0.0002	0.0007	<0.0002	0.0117	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	23/06/2022	0967_SD020_220623	Normal	EP2207825	<0.0002	<0.0002	0.0012	0.0002	0.0170	0.0003	<0.001	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	24/06/2022	0967_SD020_220624	Normal	EP2207892	<0.0002	<0.0002	0.0019	0.0006	0.0986	0.0011	<0.001	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	25/06/2022	0967_SD020_220625	Normal	EP2207910	<0.0002	<0.0002	0.0015	0.0004	0.0780	0.0008	<0.001	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	22/09/2022	0967_SD020_220922	Normal	EP2212310	0.0004	0.0003	0.0030	0.0005	0.0069	<0.0002	<0.001	<0.0002	0.0009	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	12/04/2023	0967_QC106_230412	Field Duplicate	EP2304598	<0.0002	<0.0002	0.0020	<0.0002	0.0257	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	12/04/2023	0967_QC206_230412	Interlab Duplicate	982488	<0.005	<0.005	<0.005	<0.005	0.0085	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	12/04/2023	0967_SD020_230412	Normal	EP2304598	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	9/06/2023	0967_SD020_230609	Normal	EP2307642	<0.0002	<0.0002	0.0018	0.0004	0.0672	<0.0002	<0.001	<0.0002	0.0004	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	10/06/2023	0967_QC106_230610	Field Duplicate	EP2307674	<0.0002	<0.0002	0.0006	<0.0002	0.0136	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	10/06/2023	0967_QC206_230610	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	10/06/2023	0967_SD020_230610	Normal	EP2307674	<0.0002	<0.0002	0.0004	<0.0002	0.0234	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	11/06/2023	0967_QC111_230611	Field Duplicate	EP2307679	<0.0002	<0.0002	0.0013	<0.0002	0.0102	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	11/06/2023	0967_QC211_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	0.0092	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
On-site drainage channels	SD020	11/06/2023	0967_SD020_230611	Normal	EP2307679	<0.0002	<0.0002	0.0013	<0.0002	0.0119	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	12/06/2023	0967_SD020_230612	Normal	EP2307716	<0.0002	<0.0002	0.0006	<0.0002	0.0056	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	13/06/2023	0967_SD020_230613	Normal	EP2307799	<0.0002	<0.0002	0.0009	<0.0002	0.0066	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
On-site drainage channels	SD020	11/09/2023	0967_SD020_230911	Normal	EP2312523	<0.0002	<0.0002	0.0004	<0.0002	0.0051	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	21/09/2016	RE_SS01	Normal	EP1608904	<0.0002		<0.0002		<0.0002		<0.001	<0.0002	<0.0002	<0.0002	<0.0002					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	24/08/2017	RE_SS01	Normal	EP1709164	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	8/03/2019	0967_SD021_190308	Normal	EP1902156	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	22/10/2019	0967_SD021_191022	Normal	EP1910842	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	6/05/2020	0967_QC104_200506	Field Duplicate	EP2004585	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	6/05/2020	0967_QC204_200506	Interlab Duplicate	718239	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD021	6/05/2020	0967_SD021_200506	Normal	EP2004585	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	12/10/2020	0967_SD021_201012	Normal	EP2010997	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	21/04/2021	0967_SD021_210421	Normal	EP2104358	<0.0002	<0.0002	0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	9/08/2021	0967_SD021_210809	Normal	EP2109323	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	25/08/2021	0967_SD021_210825	Normal	EP2109842	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	6/09/2021	0967_QC101_210906	Field Duplicate	EP2110381	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	6/09/2021	0967_QC201_210906	Interlab Duplicate	822875	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD021	6/09/2021	0967_SD021_210906_0.10-	Normal	EP2110381	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	19/04/2022	0967_SD021_220419	Normal	EP2204503	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	19/09/2022	0967_SD021_220919	Normal	EP2212054	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	12/04/2023	0967_SD021_230412	Normal	EP2304603	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD021	14/09/2023	0967_SD021_230914	Normal	EP2312714	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	20/09/2016	RE_SS02	Normal	EP1608799	<0.0002		0.0021		0.0174		<0.001	<0.0002	0.0002	<0.0002	0.0002					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	20/09/2016	SS_FD03	Field Duplicate	EP1608799	<0.0002		0.0026		0.0273		<0.001	<0.0002	0.0003	<0.0002	0.0002					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	20/09/2016	SS_FS03	Interlab Duplicate	186091			0.0013		0.015						0.0002						<0.0001	<0.0001		
Ellen Brook	SD022	12/10/2017	RE_SS02	Normal	EP1711448																				
Ellen Brook	SD022	6/03/2019	0967_SD022_190306	Normal	EP1902092	0.0054	0.0084	0.0502	0.0010	0.0251	<0.0002	0.005	0.0510	0.0388	0.0094	0.0037	0.0006	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0205	<0.0005	<0.0005
Ellen Brook	SD022	13/06/2019	0967_SD022_190613	Normal	EP1905805	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	14/06/2019	0967_SD022_190614	Normal	EP1905807	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	15/06/2019	0967_SD022_190615	Normal	EP1905844	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	16/06/2019	0967_SD022_190616	Normal	EP1905847	<0.0002	<0.0002	<0.0002	<0.0002	0.0010	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	17/06/2019	0967_SD022_190617	Normal	EP1905846	<0.0002	<0.0002	0.0005	<0.0002	0.0035	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0051	<0.0005	<0.0005
Ellen Brook	SD022	30/10/2019	0967_SD022_191030	Normal	EP1911181	0.0004	0.0005	0.0046	0.0002	0.0113	<0.0002	<0.001	0.0012	0.0014	0.0004	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0017	<0.0005	<0.0005
Ellen Brook	SD022	13/05/2020	0967_SD022_0.00-0.10_200	Normal	EP2004875	0.0007	0.0003	0.0016	<0.0002	0.0030	<0.0002	<0.001	0.0052	0.0023	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	30/06/2020	0967_SD022_200630	Normal	EP2006824	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	1/07/2020	0967_SD022_200701	Normal	EP2006823	<0.0002	<0.0002	0.0003	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	2/07/2020	0967_SD022_200702	Normal	EP2006907	<0.0002	<0.0002	0.0003	<0.0002	0.0029	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	3/07/2020	0967_SD022_200703	Normal	EP2006943	<0.0002	0.0003	0.0026	<0.0002	0.0082	<0.0002	<0.001	0.0009	0.0009	0.0003	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD022	4/07/2020	0967_QC102_200704	Field Duplicate	EP2006972	<0.0005	<0.0005	0.0009	<0.0005	0.0029	<0.0005	<0.001	0.0007	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Ellen Brook	**SD022**	**4/07/2020**	**0967_QC202_200704**	**Interlab Duplicate**	**730326**	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD022**	**4/07/2020**	**0967_SD022_200704**	**Normal**	**EP2006972**	0.0004	0.0006	0.0067	0.0004	0.0219	<0.0002	<0.001	0.0011	0.0010	0.0003	0.0006	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**12/10/2020**	**0967_SD022_201012**	**Normal**	**EP2011012**	0.0032	0.0030	0.0225	0.0012	0.0428	<0.0002	0.002	0.0020	0.0045	0.0009	0.0018	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**19/04/2021**	**0967_SD022_210419**	**Normal**	**EP2104218**	<0.0002	<0.0002	0.0008	<0.0002	0.0050	<0.0002	<0.001	0.0004	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0006	<0.0005	<0.0005
Ellen Brook	**SD022**	**31/05/2021**	**0967_SD022_210531**	**Normal**	**EP2106117**	0.0011	0.0013	0.0087	0.0004	0.0089	<0.0002	<0.001	0.0014	0.0021	0.0005	0.0012	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**1/06/2021**	**0967_SD022_210601**	**Normal**	**EP2106133**	0.0012	0.0020	0.0102	0.0004	0.0257	<0.0002	<0.001	0.0010	0.0017	0.0005	0.0015	0.0006	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**2/06/2021**	**0967_SD022_210602**	**Normal**	**EP2106196**	<0.0002	<0.0002	0.0005	<0.0002	0.0128	<0.0002	<0.001	0.0003	0.0003	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**3/06/2021**	**0967_SD022_210603**	**Normal**	**EP2106263**	<0.0002	<0.0002	0.0017	<0.0002	0.0139	<0.0002	<0.001	0.0010	0.0017	0.0008	0.0017	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**4/06/2021**	**0967_SD022_210604**	**Normal**	**EP2106322**	<0.0002	0.0002	0.0016	<0.0002	0.0080	<0.0002	<0.001	0.0004	0.0007	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**9/08/2021**	**0967_SD022_210809**	**Normal**	**EP2109323**	<0.0002	<0.0002	<0.0002	<0.0002	0.0083	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**24/08/2021**	**0967_SD022_210824**	**Normal**	**EP2109842**	0.0005	0.0009	0.0046	<0.0002	0.0248	<0.0002	<0.001	0.0005	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**6/09/2021**	**0967_SD022_210906_0.20-**	**Normal**	**EP2110381**	<0.0002	<0.0002	0.0019	<0.0002	0.0155	<0.0002	<0.001	0.0005	0.0005	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**20/04/2022**	**0967_SD022_220420**	**Normal**	**EP2204598**	<0.0002	<0.0002	0.0008	<0.0002	0.0042	<0.0002	<0.001	0.0008	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0081	<0.0005	<0.0005
Ellen Brook	**SD022**	**21/06/2022**	**0967_SD022_220621**	**Normal**	**EP2207629**	0.0003	<0.0002	0.0014	<0.0002	0.0068	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**22/06/2022**	**0967_SD022_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	0.0011	<0.0002	0.0075	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**23/06/2022**	**0967_SD022_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	0.0006	<0.0002	0.0060	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**24/06/2022**	**0967_SD022_220624**	**Normal**	**EP2207892**	<0.0002	<0.0002	0.0006	<0.0002	0.0060	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**25/06/2022**	**0967_SD022_220625**	**Normal**	**EP2207910**	0.0005	0.0010	0.0088	0.0003	0.0157	<0.0002	<0.001	0.0008	0.0010	0.0004	0.0008	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**22/09/2022**	**0967_SD022_220922**	**Normal**	**EP2212310**	0.0002	0.0003	0.0051	0.0003	0.0458	0.0014	<0.001	0.0013	0.0011	0.0006	0.0005	<0.0002	0.0010	0.0008	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**12/04/2023**	**0967_SD022_230412**	**Normal**	**EP2304598**	0.0003	0.0006	0.0036	<0.0002	0.0073	<0.0002	<0.001	0.0008	0.0018	0.0010	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0056	<0.0005	<0.0005
Ellen Brook	**SD022**	**9/06/2023**	**0967_SD022_230609**	**Normal**	**EP2307642**	<0.0002	<0.0002	0.0004	<0.0002	0.0029	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**10/06/2023**	**0967_SD022_230610**	**Normal**	**EP2307674**	<0.0002	<0.0002	0.0007	<0.0002	0.0054	<0.0002	<0.001	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**11/06/2023**	**0967_SD022_230611**	**Normal**	**EP2307679**	0.0002	0.0004	0.0033	<0.0002	0.0272	0.0004	<0.001	0.0004	0.0005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**12/06/2023**	**0967_SD022_230612**	**Normal**	**EP2307716**	<0.0002	<0.0002	0.0011	<0.0002	0.0067	<0.0002	<0.001	0.0004	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0008	<0.0005	<0.0005
Ellen Brook	**SD022**	**13/06/2023**	**0967_SD022_230613**	**Normal**	**EP2307799**	<0.0002	<0.0002	0.0004	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD022**	**19/09/2023**	**0967_SD022_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0009	<0.0002	0.0030	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**20/09/2016**	**RE_SS04**	**Normal**	**EP1608799**	<0.0002		0.0007		0.0024		<0.001	<0.0002	<0.0002	<0.0002	<0.0002					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**11/10/2017**	**RE_SS04**	**Normal**	**EP1711448**																				
Ellen Brook	**SD024**	**7/03/2019**	**0967_SD024_190307**	**Normal**	**EP1902154**	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**19/11/2019**	**0967_SD024_191119**	**Normal**	**EP1912125**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**7/05/2020**	**0967_SD024_200507**	**Normal**	**EP2004665**	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**14/10/2020**	**0967_SD024_201014**	**Normal**	**EP2011184**	<0.0002	<0.0002	0.0011	<0.0002	0.0015	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**21/04/2021**	**0967_SD024_210421**	**Normal**	**EP2104358**	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**7/09/2021**	**0967_SD024_210907**	**Normal**	**EP2110444**	<0.0002	<0.0002	0.0009	<0.0002	0.0163	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**20/04/2022**	**0967_QC112_220420**	**Field Duplicate**	**EP2204595**	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**20/04/2022**	**0967_QC212_220420**	**Interlab Duplicate**	**882820**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD024**	**20/04/2022**	**0967_SD024_220420**	**Normal**	**EP2204595**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**23/09/2022**	**0967_SD024_220923**	**Normal**	**EP2212364**	<0.0002	<0.0002	<0.0002	<0.0002	0.0025	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**12/04/2023**	**0967_SD024_230412**	**Normal**	**EP2304611**	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD024**	**15/09/2023**	**0967_SD024_230915**	**Normal**	**EP2312800**	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**20/09/2016**	**RE_SS05**	**Normal**	**EP1608799**	<0.0002		0.0008		0.0076		<0.001	<0.0002	0.0003	<0.0002	<0.0002					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**7/03/2019**	**0967_SD025_190307**	**Normal**	**EP1902154**	<0.0002	<0.0002	0.0032	0.0002	0.0170	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/06/2019**	**0967_SD025_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**14/06/2019**	**0967_SD025_190614**	**Normal**	**EP1905807**	<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**15/06/2019**	**0967_SD025_190615**	**Normal**	**EP1905844**	<0.0002	<0.0002	0.0009	<0.0002	0.0059	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**16/06/2019**	**0967_SD025_190616**	**Normal**	**EP1905847**	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**17/06/2019**	**0967_SD025_190617**	**Normal**	**EP1905846**	<0.0002	<0.0002	0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**25/10/2019**	**0967_QC103_0.00-0.10_19**	**Field Duplicate**	**EP1911009**	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**25/10/2019**	**0967_QC202_191025**	**Interlab Duplicate**	**685044**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD025**	**25/10/2019**	**0967_SD025_0.00-0.10_191**	**Normal**	**EP1911009**	<0.0002	<0.0002	0.0008	<0.0002	0.0037	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/05/2020**	**0967_SD025_0.00-0.10_200**	**Normal**	**EP2004908**	<0.0002	<0.0002	0.0010	<0.0002	0.0220	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**30/06/2020**	**0967_SD025_200630**	**Normal**	**EP2006824**	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**1/07/2020**	**0967_SD025_200701**	**Normal**	**EP2006823**	<0.0002	<0.0002	0.0022	0.0003	0.0412	<0.0002	<0.001	<0.0002	0.0004	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**2/07/2020**	**0967_SD025_200702**	**Normal**	**EP2006907**	<0.0002	<0.0002	0.0004	<0.0002	0.0086	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**3/07/2020**	**0967_SD025_200703**	**Normal**	**EP2006943**	<0.0002	<0.0002	0.0005	<0.0002	0.0079	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**4/07/2020**	**0967_SD025_200704**	**Normal**	**EP2006972**	<0.0005	<0.0005	<0.0005	<0.0005	0.0064	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**12/10/2020**	**0967_SD025_201012**	**Normal**	**EP2011012**	0.0003	0.0003	0.0065	0.0006	0.0573	<0.0002	<0.001	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**19/04/2021**	**0967_SD025_210419**	**Normal**	**EP2104218**	<0.0002	<0.0002	0.0027	0.0003	0.0275	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**31/05/2021**	**0967_SD025_210531**	**Normal**	**EP2106117**	<0.0002	<0.0002	0.0003	<0.0002	0.0072	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**1/06/2021**	**0967_SD025_210601**	**Normal**	**EP2106133**	<0.0002	<0.0002	0.0022	0.0002	0.0598	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**2/06/2021**	**0967_SD025_210602**	**Normal**	**EP2106196**	<0.0002	<0.0002	0.0010	<0.0002	0.0229	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**3/06/2021**	**0967_SD025_210603**	**Normal**	**EP2106263**	<0.0002	<0.0002	0.0014	0.0003	0.0414	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**4/06/2021**	**0967_SD025_210604**	**Normal**	**EP2106322**	<0.0002	<0.0002	0.0023	0.0002	0.0634	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**9/09/2021**	**0967_SD025_210909**	**Normal**	**EP2110596**	<0.0002	0.0003	0.0090	0.0016	0.152	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**20/04/2022**	**0967_SD025_220420**	**Normal**	**EP2204598**	0.0003	0.0004	0.0064	0.0005	0.0663	<0.0002	<0.001	<0.0002	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**21/06/2022**	**0967_QC103_220621**	**Field Duplicate**	**EP2207629**	0.0003	0.0002	0.0069	0.0009	0.138	<0.0002	<0.001	<0.0002	0.0008	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**21/06/2022**	**0967_QC203_220621**	**Interlab Duplicate**	**901657**	<0.0004	<0.0004	0.0053	<0.0004	0.066	<0.0004	<0.0008	<0.0002	0.0007	<0.0008	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**21/06/2022**	**0967_SD025_220621**	**Normal**	**EP2207629**	0.0003	0.0005	0.0153	0.0013	0.122	<0.0002	<0.001	<0.0002	0.0012	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**22/06/2022**	**0967_SD025_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	0.0069	0.0009	0.128	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**23/06/2022**	**0967_SD025_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	0.0040	0.0008	0.0894	0.0003	<0.001	<0.0002	0.0004	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**24/06/2022**	**0967_SD025_220624**	**Normal**	**EP2207892**	<0.0002	<0.0002	0.0015	0.0003	0.0440	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**25/06/2022**	**0967_QC121_220625**	**Field Duplicate**	**EP2207910**	<0.0002	<0.0002	0.0036	0.0004	0.0568	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**25/06/2022**	**0967_QC221_220625**	**Interlab Duplicate**	**902463**	<0.0004	<0.0004	0.0031	<0.0004	0.018	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0045	<0.0005	<0.0005
Ellen Brook	**SD025**	**25/06/2022**	**0967_SD025_220625**	**Normal**	**EP2207910**	<0.0002	<0.0002	0.0034	0.0003	0.0606	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**20/09/2022**	**0967_QC114_220920**	**Field Duplicate**	**EP2212155**	<0.0002	0.0002	0.0088	0.0011	0.129	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**20/09/2022**	**0967_QC214_220920**	**Interlab Duplicate**	**926012**	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD025**	**20/09/2022**	**0967_SD025_220920**	**Normal**	**EP2212155**	<0.0002	<0.0002	0.0060	0.0009	0.0679	<0.0002	<0.001	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**12/04/2023**	**0967_SD025_230412**	**Normal**	**EP2304598**	0.0010	0.0023	0.0328	0.0024	0.255	0.0003	<0.001	0.0006	0.0020	0.0003	0.0010	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	0.0006	<0.0005	<0.0005
Ellen Brook	**SD025**	**9/06/2023**	**0967_SD025_230609**	**Normal**	**EP2307642**	<0.0002	<0.0002	0.0064	0.0009	0.0936	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**10/06/2023**	**0967_SD025_230610**	**Norm

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Ellen Brook	**SD025**	**11/06/2023**	**0967_SD025_230611**	**Normal**	**EP2307679**	<0.0002	<0.0002	0.0011	<0.0002	0.0308	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**12/06/2023**	**0967_QC115_230612**	**Field Duplicate**	**EP2307716**	<0.0002	<0.0002	0.0032	0.0003	0.0399	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**12/06/2023**	**0967_QC215_230612**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	0.041	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD025**	**12/06/2023**	**0967_SD025_230612**	**Normal**	**EP2307716**	<0.0002	0.0003	0.0047	0.0005	0.0672	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/06/2023**	**0967_QC122_230613**	**Field Duplicate**	**EP2307799**	0.0002	0.0004	0.0096	0.0010	0.0541	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/06/2023**	**0967_QC222_230613**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	0.075	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD025**	**13/06/2023**	**0967_SD025_230613**	**Normal**	**EP2307799**	<0.0002	0.0003	0.0056	0.0007	0.147	0.0005	<0.001	0.0004	0.0010	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/09/2023**	**0967_QC110_230913**	**Field Duplicate**	**EP2312635**	<0.0002	<0.0002	0.0017	0.0002	0.0326	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD025**	**13/09/2023**	**0967_QC210_230913**	**Interlab Duplicate**	**1026632**	<0.005	<0.005	0.0098	<0.005	0.066	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD025**	**13/09/2023**	**0967_SD025_230913**	**Normal**	**EP2312635**	<0.0002	<0.0002	0.0040	0.0008	0.0959	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**20/09/2016**	**RE_SS06**	**Normal**	**EP1608799**	<0.0002		0.0003		0.0018		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**23/08/2017**	**RE_SS06**	**Normal**	**EP1709134**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**7/03/2019**	**0967_SD026_190307**	**Normal**	**EP1902154**	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**7/11/2019**	**0967_SD026_191107**	**Normal**	**EP1911619**	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**7/05/2020**	**0967_SD026_200507**	**Normal**	**EP2004665**	<0.0002	<0.0002	0.0003	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**22/10/2020**	**0967_SD026_201022**	**Normal**	**EP2011561**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**21/04/2021**	**0967_SD026_210421**	**Normal**	**EP2104358**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**7/09/2021**	**0967_SD026_210907**	**Normal**	**EP2110444**	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**20/04/2022**	**0967_SD026_220420**	**Normal**	**EP2204595**	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**23/09/2022**	**0967_SD026_220923**	**Normal**	**EP2212364**	<0.0002	<0.0002	0.0003	<0.0002	0.0133	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**12/04/2023**	**0967_SD026_230412**	**Normal**	**EP2304611**	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD026**	**14/09/2023**	**0967_SD026_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	0.0005	<0.0002	0.0068	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**20/09/2016**	**RE_SS08**	**Normal**	**EP1608799**	<0.0002		<0.0002		0.0021		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**11/03/2019**	**0967_SD028_190311**	**Normal**	**EP1902248**	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**13/06/2019**	**0967_SD028_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**14/06/2019**	**0967_SD028_190614**	**Normal**	**EP1905807**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**15/06/2019**	**0967_SD028_190615**	**Normal**	**EP1905844**	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**16/06/2019**	**0967_SD028_190616**	**Normal**	**EP1905847**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**17/06/2019**	**0967_SD028_190617**	**Normal**	**EP1905846**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**30/10/2019**	**0967_SD028_0.00-0.10_191**	**Normal**	**EP1911186**	<0.0002	<0.0002	0.0011	<0.0002	0.0136	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**8/05/2020**	**0967_SD028_200508**	**Normal**	**EP2004706**	<0.0002	<0.0002	0.0003	<0.0002	0.0047	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**30/06/2020**	**0967_SD028_200630**	**Normal**	**EP2006824**	<0.0002	<0.0002	0.0017	<0.0002	0.0097	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**1/07/2020**	**0967_SD028_200701**	**Normal**	**EP2006823**	<0.0002	<0.0002	0.0005	<0.0002	0.0058	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**2/07/2020**	**0967_SD028_200702**	**Normal**	**EP2006907**	<0.0002	<0.0002	0.0003	<0.0002	0.0031	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**3/07/2020**	**0967_SD028_200703**	**Normal**	**EP2006943**	<0.0002	<0.0002	0.0010	<0.0002	0.0098	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**4/07/2020**	**0967_SD028_200704**	**Normal**	**EP2006972**	0.0009	<0.0005	<0.0005	<0.0005	0.0137	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**12/10/2020**	**0967_SD028_201012**	**Normal**	**EP2011012**	<0.0002	<0.0002	0.0018	<0.0002	0.0203	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**20/04/2021**	**0967_SD028_210420**	**Normal**	**EP2104292**	<0.0002	<0.0002	0.0005	<0.0002	0.0121	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**31/05/2021**	**0967_SD028_210531**	**Normal**	**EP2106117**	<0.0002	<0.0002	0.0007	<0.0002	0.0193	0.0002	<0.001	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**9/09/2021**	**0967_SD028_210909**	**Normal**	**EP2110597**	<0.0002	<0.0002	0.0004	<0.0002	0.0146	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**21/04/2022**	**0967_SD028_220421**	**Normal**	**EP2204669**	<0.0002	<0.0002	0.0005	<0.0002	0.0018	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**21/06/2022**	**0967_SD028_220621**	**Normal**	**EP2207629**	0.0002	<0.0002	0.0016	<0.0002	0.0149	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**22/06/2022**	**0967_QC108_220622**	**Field Duplicate**	**EP2207735**	<0.0002	<0.0002	0.0016	<0.0002	0.0191	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**22/06/2022**	**0967_QC208_220621**	**Interlab Duplicate**	**901660**	<0.0004	<0.0004	0.0019	<0.0004	0.0045	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**22/06/2022**	**0967_SD028_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	0.0015	<0.0002	0.0139	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**23/06/2022**	**0967_SD028_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	0.0009	<0.0002	0.0086	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**24/06/2022**	**0967_SD028_220624**	**Normal**	**EP2207892**	<0.0002	<0.0002	0.0008	<0.0002	0.0102	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**25/06/2022**	**0967_SD028_220625**	**Normal**	**EP2207910**	<0.0002	<0.0002	0.0011	<0.0002	0.0134	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**20/09/2022**	**0967_SD028_220920**	**Normal**	**EP2212155**	<0.0002	<0.0002	0.0010	<0.0002	0.0098	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**12/04/2023**	**0967_SD028_230412**	**Normal**	**EP2304602**	<0.0002	<0.0002	0.0009	<0.0002	0.0212	0.0004	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**9/06/2023**	**0967_SD028_230609**	**Normal**	**EP2307642**	<0.0002	<0.0002	0.0012	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**10/06/2023**	**0967_SD028_230610**	**Normal**	**EP2307674**	<0.0002	<0.0002	0.0004	<0.0002	0.0078	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**11/06/2023**	**0967_SD028_230611**	**Normal**	**EP2307679**	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**12/06/2023**	**0967_SD028_230612**	**Normal**	**EP2307716**	<0.0002	<0.0002	0.0004	<0.0002	0.0021	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**13/06/2023**	**0967_SD028_230613**	**Normal**	**EP2307799**	<0.0002	<0.0002	0.0008	<0.0002	0.0022	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD028**	**19/09/2023**	**0967_SD028_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0008	<0.0002	0.0087	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056	<0.0005	<0.0022	<0.0022	<0.0022
Ellen Brook	**SD029**	**20/09/2016**	**RE_SS09**	**Normal**	**EP1608799**	<0.0002	<0.0002	0.0005	<0.0002	0.0022	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**23/08/2017**	**RE_SS09**	**Normal**	**EP1709134**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**11/03/2019**	**0967_SD029_190311**	**Normal**	**EP1902248**	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**30/10/2019**	**0967_SD029_0.00-0.10_191**	**Normal**	**EP1911186**	0.0096	<0.0002	0.0071	0.0006	0.0249	<0.0002	<0.001	<0.0002	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**8/05/2020**	**0967_SD029_200508**	**Normal**	**EP2004706**	<0.0002	<0.0002	0.0005	<0.0002	0.0046	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**12/10/2020**	**0967_SD029_201012**	**Normal**	**EP2011012**	<0.0002	<0.0002	0.0009	<0.0002	0.0237	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**20/04/2021**	**0967_QC108_210420**	**Field Duplicate**	**EP2104292**	0.0002	<0.0002	0.0017	<0.0002	0.0082	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**20/04/2021**	**0967_QC208_210420**	**Interlab Duplicate**	**789529**	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD029**	**20/04/2021**	**0967_SD029_210420**	**Normal**	**EP2104292**	<0.0002	<0.0002	0.0018	<0.0002	0.0091	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**9/09/2021**	**0967_SD029_210909**	**Normal**	**EP2110597**	<0.0002	<0.0002	0.0006	<0.0002	0.0137	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**21/04/2022**	**0967_SD029_220421**	**Normal**	**EP2204669**	<0.0002	<0.0002	0.0007	<0.0002	0.0450	<0.0002	<0.001	0.0007	0.0006	<0.0002	0.0004	0.0005	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**20/09/2022**	**0967_SD029_220920**	**Normal**	**EP2212155**	<0.0002	<0.0002	0.0006	<0.0002	0.0078	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**12/04/2023**	**0967_SD029_230412**	**Normal**	**EP2304598**	0.0015	0.0005	0.0017	<0.0002	0.0041	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD029**	**19/09/2023**	**0967_SD029_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	0.0005	<0.0002	0.0041	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0022	<0.0056	<0.0005	<0.0022	<0.0022	<0.0022
Ki-it Monger Brook	**SD032**	**21/09/2016**	**RK_SS12**	**Normal**	**EP1608904**	<0.0002		0.0013		0.0061		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**22/08/2017**	**RK_SS12**	**Normal**	**EP1709097**	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**13/06/2019**	**0967_SD032_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	0.0004	<0.0002	0.0073	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**14/06/2019**	**0967_SD032_190614**	**Normal**	**EP1905807**	<0.0002	<0.0002	0.0003	<0.0002	0.0040	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**15/06/2019**	**0967_QC121_190615**	**Field Duplicate**	**EP1905844**	<0.0002	<0.0002	0.0003	<0.0002	0.0063	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**15/06/2019**	**0967_QC221_190615**	**Interlab Duplicate**	**228322**	<0.0002	<0.0002	0.0005	<0.0002	0.012	<0.0004	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.001	<0.001	<0.01	<0.0002	<0.0002	<0.0002	<0.0002
Ki-it Monger Brook	**SD032**	**15/06/2019**	**0967_SD032_190615**	**Normal**	**EP1905844**	<0.0002	<0.0002	0.0006	<0.0002	0.0080	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**16/06/2019**	**0967_SD032_190616**	**Normal**	**EP1905847**	<0.0002	<0.0002	<0.0002	<0.0002	0.0043	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**17/06/2019**	**0967_SD032_190617**	**Normal**	**EP1905846**	<0.0002	<0.0002	0.0002	<0.0002	0.0038	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Ki-it Monger Brook	**SD032**	**6/05/2020**	**0967_SD032_200506**	**Normal**	**EP2004585**	0.0003	0.0003	0.0048	<0.0002	0.0213	<0.0002	<0.001	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**30/06/2020**	**0967_SD032_200630**	**Normal**	**EP2006824**	<0.0002	<0.0002	0.0011	<0.0002	0.0133	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**1/07/2020**	**0967_SD032_200701**	**Normal**	**EP2006823**	<0.0002	<0.0002	0.0006	<0.0002	0.0049	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**2/07/2020**	**0967_SD032_200702**	**Normal**	**EP2006907**	<0.0002	<0.0002	0.0002	<0.0002	0.0028	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**3/07/2020**	**0967_SD032_200703**	**Normal**	**EP2006943**	<0.0002	<0.0002	<0.0002	<0.0002	0.0038	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**4/07/2020**	**0967_SD032_200704**	**Normal**	**EP2006972**	<0.0005	<0.0005	<0.0005	<0.0005	0.0046	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**22/10/2020**	**0967_SD032_201022**	**Normal**	**EP2011547**	<0.0002	<0.0002	0.0003	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**19/04/2021**	**0967_SD032_210419**	**Normal**	**EP2104218**	<0.0002	<0.0002	0.0003	<0.0002	0.0051	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**31/05/2021**	**0967_SD032_210531**	**Normal**	**EP2106117**	<0.0002	<0.0002	0.0005	<0.0002	0.0055	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**1/06/2021**	**0967_SD032_210601**	**Normal**	**EP2106133**	<0.0002	0.0002	0.0063	0.0010	0.0961	0.0006	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**2/06/2021**	**0967_SD032_210602**	**Normal**	**EP2106196**	0.0004	0.0002	0.0031	0.0004	0.0387	<0.0002	<0.001	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**3/06/2021**	**0967_SD032_210603**	**Normal**	**EP2106263**	0.0002	0.0002	0.0033	0.0003	0.0474	<0.0002	0.001	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**4/06/2021**	**0967_SD032_210604**	**Normal**	**EP2106322**	0.0002	<0.0002	0.0032	0.0004	0.0581	0.0006	<0.001	0.0002	0.0006	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**7/09/2021**	**0967_SD032_210907**	**Normal**	**EP2110447**	<0.0002	<0.0002	0.0005	<0.0002	0.0053	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**19/04/2022**	**0967_SD032_220419**	**Normal**	**EP2204500**	<0.0002	<0.0002	0.0003	<0.0002	0.0063	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**21/06/2022**	**0967_SD032_220621**	**Normal**	**EP2207629**	<0.0002	<0.0002	0.0006	<0.0002	0.0092	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**22/06/2022**	**0967_SD032_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	0.0005	<0.0002	0.0096	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**23/06/2022**	**0967_QC111_220623**	**Field Duplicate**	**EP2207825**	<0.0002	<0.0002	0.0004	<0.0002	0.0101	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**23/06/2022**	**0967_QC211_220623**	**Interlab Duplicate**	**902466**	<0.0004	<0.0004	<0.0004	<0.0004	0.0049	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0013	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**23/06/2022**	**0967_SD032_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	0.0007	<0.0002	0.0111	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**24/06/2022**	**0967_SD032_220624**	**Normal**	**EP2207892**	<0.0002	<0.0002	0.0005	<0.0002	0.0074	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**25/06/2022**	**0967_QC119_220625**	**Field Duplicate**	**EP2207910**	<0.0002	<0.0002	0.0003	<0.0002	0.0045	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**25/06/2022**	**0967_QC219_220625**	**Interlab Duplicate**	**902463**	<0.0004	<0.0004	<0.0004	<0.0004	0.0059	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0024	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**25/06/2022**	**0967_SD032_220625**	**Normal**	**EP2207910**	<0.0002	<0.0002	0.0004	<0.0002	0.0066	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**19/09/2022**	**0967_QC105_220919**	**Field Duplicate**	**EP2212079**	<0.0002	<0.0002	0.0004	<0.0002	0.0049	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**19/09/2022**	**0967_QC205_220919**	**Interlab Duplicate**	**926012**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	**SD032**	**19/09/2022**	**0967_SD032_220919**	**Normal**	**EP2212079**	<0.0002	<0.0002	0.0008	<0.0002	0.0093	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**12/04/2023**	**0967_SD032_230412**	**Normal**	**EP2304602**	<0.0002	<0.0002	0.0009	<0.0002	0.0089	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**9/06/2023**	**0967_QC102_230609**	**Field Duplicate**	**EP2307642**	<0.0002	<0.0002	0.0004	<0.0002	0.0072	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**9/06/2023**	**0967_QC202_230609**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	0.0069	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	**SD032**	**9/06/2023**	**0967_SD032_230609**	**Normal**	**EP2307642**	<0.0002	<0.0002	0.0009	<0.0002	0.0089	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**10/06/2023**	**0967_SD032_230610**	**Normal**	**EP2307674**	<0.0002	<0.0002	0.0003	<0.0002	0.0059	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**11/06/2023**	**0967_SD032_230611**	**Normal**	**EP2307679**	<0.0002	<0.0002	0.0006	<0.0002	0.0212	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**12/06/2023**	**0967_QC114_230612**	**Field Duplicate**	**EP2307716**	<0.0002	<0.0002	0.0014	<0.0002	0.0224	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**12/06/2023**	**0967_QC214_230612**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	**SD032**	**12/06/2023**	**0967_SD032_230612**	**Normal**	**EP2307716**	<0.0002	0.0002	0.0014	<0.0002	0.0305	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**13/06/2023**	**0967_SD032_230613**	**Normal**	**EP2307799**	0.0002	0.0003	0.0052	0.0006	0.0454	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD032**	**11/09/2023**	**0967_SD032_230911**	**Normal**	**EP2312523**	<0.0002	<0.0002	0.0003	<0.0002	0.0035	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**21/09/2016**	**RK_SS14**	**Normal**	**EP1608904**	<0.0002	0.0004	0.0074	0.0006	0.0718	<0.0002	<0.001	<0.0002	0.0009	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**5/03/2019**	**0967_SD034_190305**	**Normal**	**EP1902013**	<0.0002	<0.0002	0.0007	<0.0002	0.0050	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**13/06/2019**	**0967_SD034_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	0.0004	<0.0002	0.0079	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**14/06/2019**	**0967_SD034_190614**	**Normal**	**EP1905807**	<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**15/06/2019**	**0967_SD034_190615**	**Normal**	**EP1905844**	<0.0002	<0.0002	<0.0002	<0.0002	0.0030	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**16/06/2019**	**0967_SD034_190616**	**Normal**	**EP1905847**	<0.0002	<0.0002	0.0002	<0.0002	0.0054	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**17/06/2019**	**0967_QC128_190617**	**Field Duplicate**	**EP1905846**	<0.0002	<0.0002	0.0005	<0.0002	0.0086	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**17/06/2019**	**0967_QC228_190617**	**Interlab Duplicate**	**228323**	<0.0001	<0.0001	0.0004	<0.0001	0.0076	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Ki-it Monger Brook	**SD034**	**17/06/2019**	**0967_SD034_190617**	**Normal**	**EP1905846**	<0.0002	<0.0002	0.0003	<0.0002	0.0048	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**30/10/2019**	**0967_SD034_191030**	**Normal**	**EP1911184**	<0.0002	<0.0002	0.0046	<0.0002	0.0643	0.0061	0.001	<0.0002	0.0009	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**7/05/2020**	**0967_SD034_200507**	**Normal**	**EP2004665**	0.0004	<0.0002	0.0020	<0.0002	0.0278	<0.0002	<0.001	0.0006	0.0008	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**30/06/2020**	**0967_SD034_200630**	**Normal**	**EP2006824**	0.0006	0.0009	0.0127	0.0009	0.0752	0.0022	<0.001	0.0011	0.0028	0.0003	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**1/07/2020**	**0967_SD034_200701**	**Normal**	**EP2006823**	0.0003	0.0004	0.0072	0.0009	0.265	0.0027	<0.001	0.0004	0.0013	0.0002	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**2/07/2020**	**0967_SD034_200702**	**Normal**	**EP2006907**	0.0002	0.0003	0.0033	0.0003	0.0344	0.0012	<0.001	0.0003	0.0007	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**3/07/2020**	**0967_SD034_200703**	**Normal**	**EP2006943**	<0.0002	<0.0002	<0.0002	<0.0002	0.0064	0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**4/07/2020**	**0967_SD034_200704**	**Normal**	**EP2006972**	<0.0005	<0.0005	0.0011	<0.0005	0.0155	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**22/10/2020**	**0967_SD034_201022**	**Normal**	**EP2011547**	<0.0002	0.0005	0.0095	0.0008	0.171	0.0041	<0.001	0.0003	0.0016	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**19/04/2021**	**0967_QC101_210419**	**Field Duplicate**	**EP2104218**	0.0002	<0.0002	0.0025	<0.0002	0.0344	<0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**19/04/2021**	**0967_QC201_210419**	**Interlab Duplicate**	**790153**	<0.005	<0.005	<0.005	<0.005	0.054	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	**SD034**	**19/04/2021**	**0967_SD034_210419**	**Normal**	**EP2104218**	<0.0002	<0.0002	0.0018	<0.0002	0.0270	0.0004	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**31/05/2021**	**0967_QC104_210531**	**Field Duplicate**	**EP2106117**	<0.0002	<0.0002	0.0002	<0.0002	0.0098	0.0014	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**31/05/2021**	**0967_SD034_210531**	**Normal**	**EP2106117**	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	0.0020	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**1/06/2021**	**0967_SD034_210601**	**Normal**	**EP2106133**	<0.0002	<0.0002	0.0011	<0.0002	0.0217	0.0017	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**2/06/2021**	**0967_SD034_210602**	**Normal**	**EP2106196**	<0.0002	<0.0002	<0.0002	<0.0002	0.0044	0.0028	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**3/06/2021**	**0967_SD034_210603**	**Normal**	**EP2106263**	<0.0002	<0.0002	<0.0002	<0.0002	0.0039	0.0019	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**4/06/2021**	**0967_SD034_210604**	**Normal**	**EP2106322**	<0.0002	<0.0002	<0.0002	<0.0002	0.0055	0.0034	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**7/09/2021**	**0967_SD034_210907**	**Normal**	**EP2110447**	0.0005	0.0006	0.0106	0.0019	0.282	0.0023	<0.001	0.0002	0.0011	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**19/04/2022**	**0967_QC105_220419**	**Field Duplicate**	**EP2204500**	<0.0002	<0.0002	<0.0002	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**19/04/2022**	**0967_QC205_220419**	**Interlab Duplicate**	**882564**	<0.005	<0.005	<0.005	<0.005	0.0081	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	**SD034**	**19/04/2022**	**0967_SD034_220419**	**Normal**	**EP2204500**	<0.0002	<0.0002	0.0010	<0.0002	0.0201	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**21/06/2022**	**0967_SD034_220621**	**Normal**	**EP2207629**	<0.0002	<0.0002	0.0012	<0.0002	0.0248	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**22/06/2022**	**0967_SD034_220622**	**Normal**	**EP2207735**	0.0004	0.0004	0.0085	0.0016	0.238	0.0022	<0.001	<0.0002	0.0010	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**23/06/2022**	**0967_SD034_220623**	**Normal**	**EP2207825**	0.0003	0.0004	0.0066	0.0019	0.217	0.0010	<0.001	0.0002	0.0010	<0.0002	0.0006	0.0003	0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**24/06/2022**	**0967_QC116_220624**	**Field Duplicate**	**EP2207892**	0.0002	0.0004	0.0075	0.0008	0.170	0.0011	<0.001	0.0003	0.0010	0.0002	0.0007	0.0003	0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**24/06/2022**	**0967_QC216_220624**	**Interlab Duplicate**	**902459**	<0.0004	<0.0004	0.0066	0.0010	0.073	<0.0004	<0.0008	0.0003	0.0010	<0.0008	0.0010	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0038	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**24/06/2022**	**0967_SD034_220624**	**Normal**	**EP2207892**	0.0003	0.0005	0.0093	0.0013	0.328	0.0016	<0.001	0.0006	0.0018	0.0003	0.0012	0.0003	0.0002	0.0003	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**25/06/2022**	**0967_SD034_220625**	**Normal**	**EP2207910**	0.0003	0.0005	0.0095	0.0010	0.353	0.0029	<0.001	<0.0002	0.0010	<0.0002	0.0008	0.0004	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**19/09/2022**	**0967_SD034_220919**	**Normal**	**EP2212079**	0.0002	0.0002	0.0047	<0.0002	0.0970	0.0012	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	**SD034**	**12/04/2023**	**0967_SD034_230412**	**Normal**	**EP2304598**	<0.0002	<0.0002	0.0031	0.0003	0.0815	0.0344	<0.001	<0.0002	0.0006

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Ki-it Monger Brook	SD034	12/06/2023	0967_SD034_230612	Normal	EP2307716	<0.0002	<0.0002	0.0018	<0.0002	0.0338	0.0011	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD034	13/06/2023	0967_SD034_230613	Normal	EP2307799	<0.0002	<0.0002	<0.0002	<0.0002	0.0044	0.0012	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD034	11/09/2023	0967_SD034_230911	Normal	EP2312523	<0.0002	<0.0002	0.0017	<0.0002	0.0411	<0.0003	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0007	<0.0005	<0.0007	<0.0007	<0.0007
Ki-it Monger Brook	SD035	21/09/2016	RK_SS15	Normal	EP1608904	<0.0002		0.0006		0.0055		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	22/08/2017	RK_SS15	Normal	EP1709097	<0.0002	<0.0002	0.0005	<0.0002	0.0113	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	5/03/2019	0967_SD035_190305	Normal	EP1902013	<0.0002	<0.0002	0.0009	<0.0002	0.0068	<0.0002	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	30/10/2019	0967_SD035_191030	Normal	EP1911184	<0.0002	<0.0002	0.0005	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	6/05/2020	0967_SD035_200506	Normal	EP2004585	0.0009	0.0004	0.0052	<0.0002	0.0435	<0.0002	<0.001	0.0006	0.0015	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	22/10/2020	0967_SD035_201022	Normal	EP2011547	<0.0002	<0.0002	0.0004	<0.0002	0.0050	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	19/04/2021	0967_SD035_210419	Normal	EP2104218	<0.0002	<0.0002	0.0008	<0.0002	0.0113	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	7/09/2021	0967_SD035_210907	Normal	EP2110447	<0.0002	<0.0002	0.0004	<0.0002	0.0086	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	19/04/2022	0967_SD035_220419	Normal	EP2204500	<0.0002	<0.0002	<0.0002	<0.0002	0.0055	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	19/09/2022	0967_SD035_220919	Normal	EP2212079	<0.0002	<0.0002	0.0008	<0.0002	0.0110	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	12/04/2023	0967_SD035_230412	Normal	EP2304598	0.0011	0.0012	0.0178	0.0010	0.141	0.0278	<0.001	0.0004	0.0017	0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD035	11/09/2023	0967_SD035_230911	Normal	EP2312523	<0.0002	<0.0002	0.0003	<0.0002	0.0069	<0.0002	<0.001	0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0007	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	27/10/2016	RK_SS16	Normal	EP1610241	<0.0002		0.0003		0.0026		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	27/10/2016	RK_SS16	Normal	EP1611527	<0.0002		0.0003		0.0026		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	4/09/2017	RK_SS16	Normal	EP1709698	<0.0002	<0.0002	<0.0002	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	4/09/2017	RK_SS16	Normal	EP1710899	<0.0002	<0.0002	<0.0002	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	8/03/2019	0967_SD036_190308	Normal	EP1902156	<0.0002	<0.0002	0.0005	<0.0002	0.0046	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	13/06/2019	0967_QC114_190613	Field Duplicate	EP1905805	<0.0002	<0.0002	0.0002	<0.0002	0.0023	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	13/06/2019	0967_QC214_190613	Interlab Duplicate	228248	<0.0001	<0.0001	0.0004	<0.0001	0.0023	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
Ki-it Monger Brook	SD036	13/06/2019	0967_SD036_190613	Normal	EP1905805	<0.0002	<0.0002	0.0003	<0.0002	0.0030	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	14/06/2019	0967_SD036_190614	Normal	EP1905807	<0.0002	<0.0002	0.0005	<0.0002	0.0067	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	15/06/2019	0967_SD036_190615	Normal	EP1905844	<0.0002	<0.0002	<0.0002	<0.0002	0.0030	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	16/06/2019	0967_SD036_190616	Normal	EP1905847	<0.0002	<0.0002	<0.0002	<0.0002	0.0025	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	17/06/2019	0967_SD036_190617	Normal	EP1905846	<0.0002	<0.0002	0.0003	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	7/11/2019	0967_SD036_191107	Normal	EP1911619	<0.0002	<0.0002	0.0037	<0.0002	0.0308	<0.0002	<0.001	<0.0002	0.0006	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	11/05/2020	0967_SD036_0.00-0.10_200	Normal	EP2004791	<0.0002	<0.0002	0.0004	<0.0002	0.0057	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	30/06/2020	0967_SD036_200630	Normal	EP2006827	<0.0002	<0.0002	0.0004	<0.0002	0.0057	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	1/07/2020	0967_SD036_200701	Normal	EP2006821	<0.0002	<0.0002	0.0005	<0.0002	0.0088	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	2/07/2020	0967_SD036_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0002	0.0004	<0.0002	0.0056	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	3/07/2020	0967_SD036_200703	Normal	EP2006958	0.0003	0.0003	0.0023	<0.0002	0.0165	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	4/07/2020	0967_SD036_200704	Normal	EP2006965	<0.0005	<0.0005	<0.0005	<0.0005	0.0371	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	12/10/2020	0967_SD036_201012	Normal	EP2010997	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	19/04/2021	0967_SD036_210419	Normal	EP2104210	<0.0002	<0.0002	0.0010	<0.0002	0.0095	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	31/05/2021	0967_SD036_210531	Normal	EP2106118	<0.0002	<0.0002	0.0004	<0.0002	0.0057	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	2/06/2021	0967_SD036_210602	Normal	EP2106206	<0.0002	<0.0002	0.0010	<0.0002	0.0230	0.0005	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	3/06/2021	0967_SD036_210603	Normal	EP2106283	<0.0002	<0.0002	0.0010	0.0002	0.0275	0.0005	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	4/06/2021	0967_SD036_210604	Normal	EP2106324	<0.0002	<0.0002	0.0007	<0.0002	0.0204	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	10/08/2021	0967_SD036_210810	Normal	EP2109323	<0.0002	<0.0002	0.0006	<0.0002	0.0113	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	24/08/2021	0967_SD036_210824	Normal	EP2109842	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	9/09/2021	0967_SD036_210909	Normal	EP2110597	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	20/04/2022	0967_SD036_220420	Normal	EP2204595	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	21/06/2022	0967_SD036_220621	Normal	EP2207629	<0.0002	<0.0002	0.0039	<0.0002	0.0616	<0.0002	<0.001	<0.0002	0.0006	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	22/06/2022	0967_SD036_220622	Normal	EP2207735	<0.0002	<0.0002	0.0015	0.0003	0.0468	0.0007	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	23/06/2022	0967_SD036_220623	Normal	EP2207825	<0.0002	<0.0002	0.0017	<0.0002	0.0388	0.0004	<0.001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	24/06/2022	0967_SD036_220624	Normal	EP2207894	<0.0002	<0.0002	0.0010	<0.0002	0.0248	0.0006	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	25/06/2022	0967_SD036_220625	Normal	EP2207910	<0.0002	0.0002	0.0030	<0.0002	0.0492	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	20/09/2022	0967_SD036_220920	Normal	EP2212157	<0.0002	<0.0002	0.0012	<0.0002	0.0165	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	13/04/2023	0967_SD036_230413	Normal	EP2304670	<0.0002	<0.0002	0.0004	<0.0002	0.0104	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	9/06/2023	0967_SD036_230609	Normal	EP2307642	0.0002	0.0003	0.0023	0.0004	0.0798	<0.0002	<0.001	<0.0002	0.0005	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	10/06/2023	0967_SD036_230610	Normal	EP2307677	<0.0002	<0.0002	0.0004	<0.0002	0.0060	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	11/06/2023	0967_SD036_230611	Normal	EP2307679	<0.0002	<0.0002	0.0002	<0.0002	0.0063	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	12/06/2023	0967_QC117_230612	Field Duplicate	EP2307719	<0.0002	<0.0002	0.0004	<0.0002	0.0051	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	12/06/2023	0967_QC217_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	SD036	12/06/2023	0967_SD036_230612	Normal	EP2307719	<0.0002	<0.0002	0.0006	<0.0002	0.0080	0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	13/06/2023	0967_QC126_230613	Field Duplicate	EP2307805	<0.0002	<0.0002	0.0004	<0.0002	0.0071	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	13/06/2023	0967_QC226_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	SD036	13/06/2023	0967_SD036_230613	Normal	EP2307805	<0.0002	<0.0002	0.0002	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD036	18/09/2023	0967_SD036_230918	Normal	EP2312966	<0.0002	<0.0002	0.0007	<0.0002	0.0191	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0022	<0.0022	<0.0022	<0.0006	<0.0005	<0.0005	<0.0022	<0.0022
Ki-it Monger Brook	SD044	27/10/2016	RK_SS24	Normal	EP1610241	<0.0002		0.0003		0.0135		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	22/08/2017	RK_SS24	Normal	EP1709097	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	10/10/2017	RK_SS24	Normal	EP1711281																				
Ki-it Monger Brook	SD044	11/03/2019	0967_QC110_190311	Field Duplicate	EP1902248	<0.0002	<0.0002	0.0016	<0.0002	0.0170	0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	11/03/2019	0967_QC210_190311	Interlab Duplicate	223560	0.0001	0.0001	0.0014	<0.0001	0.019	0.0027	<0.0002	<0.0002	0.0003	<0.0001	<0.0001	<0.0001	<0.0005	<0.001	<0.001	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
Ki-it Monger Brook	SD044	11/03/2019	0967_SD044_190311	Normal	EP1902248	<0.0002	<0.0002	0.0019	<0.0002	0.0184	0.0002	<0.001	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	22/10/2019	0967_SD044_191022	Normal	EP1910842	<0.0002	<0.0002	0.0012	<0.0002	0.0233	<0.0002	<0.001	0.0005	0.0022	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	7/05/2020	0967_SD044_200507	Normal	EP2004665	0.0004	<0.0002	0.0011	<0.0002	0.0162	<0.0002	<0.001	0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	12/10/2020	0967_QC106_201012	Field Duplicate	EP2011009	<0.0002	<0.0002	<0.0002	<0.0002	0.0081	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	12/10/2020	0967_QC206_201012	Interlab Duplicate	750345	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	SD044	12/10/2020	0967_SD044_201012	Normal	EP2011009	<0.0002	<0.0002	<0.0002	<0.0002	0.0023	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	19/04/2021	0967_SD044_210419	Normal	EP2104218	0.0003	<0.0002	0.0020	<0.0002	0.0199	<0.0002	<0.001	<0.0002	0.0004	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	7/09/2021	0967_SD044_210907	Normal	EP2110447	<0.0002	<0.0002	0.0004	<0.0002	0.0068	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	8/10/2021	0967_QC103_211008	Field Duplicate	EP2112051																				
Ki-it Monger Brook	SD044	8/10/2021	0967_QC203_211008	Interlab Duplicate	832505																				
Ki-it Monger Brook	SD044	8/10/2021	0967_ SD044_211008	Normal	EP2112051																				
Ki-it Monger Brook	SD044	19/04/2022	0967_SD044_220419	Normal	EP2204500	<0.0002	<0.0002	0.0003	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	19/09/2022	0967_SD044_220919	Normal	EP2212079	<0.0002	<0.0002	0.0006	<0.0002	0.0073	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	20/10/2022	0967_SD044_221020	Normal	EP2213836																				

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
Ki-it Monger Brook	SD044	12/04/2023	0967_SD044_230412	Normal	EP2304598	0.0002	<0.0002	0.0003	<0.0002	0.0075	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD044	11/09/2023	0967_SD044_230911	Normal	EP2312523	<0.0002	<0.0002	0.0002	<0.0002	0.0088	<0.0003	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0007	<0.0005	<0.0007	<0.0007	<0.0007
Ki-it Monger Brook	SD044	6/10/2023	0967_SD044_231006	Normal	EP2313944																				
Ki-it Monger Brook	SD046	27/10/2016	RK_SS26	Normal	EP1610241	<0.0002		<0.0002		<0.0002		<0.001	<0.0002	0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	6/03/2019	0967_SD046_190306	Normal	EP1902092	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	22/10/2019	0967_QC102_191022	Field Duplicate	EP1910842	<0.0002	<0.0002	<0.0002	<0.0002	0.0036	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	22/10/2019	0967_QC202_191022	Interlab Duplicate	684560	<0.005	<0.005	<0.005	<0.005	0.0067	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ki-it Monger Brook	SD046	22/10/2019	0967_SD046_191022	Normal	EP1910842	<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	6/05/2020	0967_SD046_200506	Normal	EP2004585	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	12/10/2020	0967_SD046_201012	Normal	EP2011009	0.0033	<0.0002	0.0003	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	20/04/2021	0967_SD046_210420	Normal	EP2104292	<0.0002	<0.0002	<0.0002	<0.0002	0.0028	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	9/08/2021	0967_SD046_210809	Normal	EP2109323	<0.0002	<0.0002	<0.0002	<0.0002	0.0015	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	24/08/2021	0967_SD046_210824	Normal	EP2109842	<0.0002	<0.0002	0.0003	<0.0002	0.0042	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	8/09/2021	0967_SD046_210908	Normal	EP2110526	<0.0002	<0.0002	<0.0002	<0.0002	0.0015	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	19/04/2022	0967_SD046_220419	Normal	EP2204500	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	19/09/2022	0967_SD046_220919	Normal	EP2212079	<0.0002	<0.0002	<0.0002	<0.0002	0.0034	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	12/04/2023	0967_SD046_230412	Normal	EP2304598	<0.0002	<0.0002	0.0006	<0.0002	0.0100	<0.0002	<0.001	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ki-it Monger Brook	SD046	13/09/2023	0967_SD046_230913	Normal	EP2312635	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0009	<0.0009	<0.0009	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	28/04/2017	RE_SS29	Normal	EP1704272	<0.0002	<0.0002	0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	24/08/2017	RE_SS29	Normal	EP1709164	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	11/03/2019	0967_SD049_190311	Normal	EP1902248	<0.0002	<0.0002	0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	13/06/2019	0967_SD049_190613	Normal	EP1905805	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	14/06/2019	0967_QC119_190614	Field Duplicate	EP1905807	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	14/06/2019	0967_QC219_190614	Interlab Duplicate	228247	<0.0001	<0.0001	<0.0001	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
Ellen Brook	SD049	14/06/2019	0967_SD049_190614	Normal	EP1905807	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	15/06/2019	0967_SD049_190615	Normal	EP1905844	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	16/06/2019	0967_QC127_190616	Field Duplicate	EP1905847	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	16/06/2019	0967_QC227_190616	Interlab Duplicate	228321	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.002	<0.002	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
Ellen Brook	SD049	16/06/2019	0967_SD049_190616	Normal	EP1905847	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	17/06/2019	0967_SD049_190617	Normal	EP1905846	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	4/12/2019	0967_SD049_191204	Normal	EP1912894	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	6/05/2020	0967_SD049_200506	Normal	EP2004587	<0.0002	<0.0002	0.0004	<0.0002	0.0015	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	30/06/2020	0967_QC101_200630	Field Duplicate	EP2006824	<0.0002	<0.0002	0.0004	<0.0002	0.0052	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	30/06/2020	0967_QC201_200630	Interlab Duplicate	729574	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	30/06/2020	0967_SD049_200630	Normal	EP2006824	<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	1/07/2020	0967_SD049_200701	Normal	EP2006821	<0.0002	<0.0002	<0.0002	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	2/07/2020	0967_SD049_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0002	0.0002	<0.0002	0.0030	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	3/07/2020	0967_SD049_200703	Normal	EP2006958	<0.0002	<0.0002	0.0002	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	4/07/2020	0967_SD049_200704	Normal	EP2006965	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	22/10/2020	0967_SD049_201022	Normal	EP2011547	<0.0002	<0.0002	<0.0002	<0.0002	0.0023	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	19/04/2021	0967_SD049_210419	Normal	EP2104210	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	31/05/2021	0967_SD049_210531	Normal	EP2106118	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	1/06/2021	0967_SD049_210601	Normal	EP2106151	<0.0002	<0.0002	0.0003	<0.0002	0.0030	0.0003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	2/06/2021	0967_QC108_210602	Field Duplicate	EP2106206	<0.0002	<0.0002	0.0003	<0.0002	0.0027	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	2/06/2021	0967_QC208_210602	Interlab Duplicate	800405	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	2/06/2021	0967_SD049_210602	Normal	EP2106206	<0.0002	<0.0002	0.0003	<0.0002	0.0040	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	3/06/2021	0967_QC111_210603	Field Duplicate	EP2106283	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	3/06/2021	0967_QC211_210603	Interlab Duplicate	800794	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	3/06/2021	0967_SD049_210603	Normal	EP2106283	<0.0002	<0.0002	<0.0005	<0.0002	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	4/06/2021	0967_QC116_210604	Field Duplicate	EP2106324	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	4/06/2021	0967_QC215_210604	Interlab Duplicate	801498	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	4/06/2021	0967_SD049_210604	Normal	EP2106324	<0.0002	<0.0002	0.0002	<0.0002	0.0013	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	8/09/2021	0967_SD049_210908	Normal	EP2110528	<0.0002	<0.0002	<0.0002	<0.0002	0.0021	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	21/04/2022	0967_SD049_220421	Normal	EP2204672	<0.0002	<0.0002	0.0005	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	21/06/2022	0967_SD049_220621	Normal	EP2207629	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	22/06/2022	0967_SD049_220622	Normal	EP2207735	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	23/06/2022	0967_QC113_220623	Field Duplicate	EP2207825	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	23/06/2022	0967_QC213_220623	Interlab Duplicate	902466	<0.0004	<0.0004	<0.0004	<0.0004	0.093	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.0098	<0.0005	<0.0005
Ellen Brook	SD049	23/06/2022	0967_SD049_220623	Normal	EP2207825	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	24/06/2022	0967_SD049_220624	Normal	EP2207894	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	25/06/2022	0967_SD049_220625	Normal	EP2207910	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	21/09/2022	0967_SD049_220921	Normal	EP2212259	<0.0002	<0.0002	0.0020	0.0005	0.0522	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	11/04/2023	0967_QC102_230411	Field Duplicate	EP2304519	<0.0002	<0.0002	0.0008	<0.0002	0.0107	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	11/04/2023	0967_QC202_230411	Interlab Duplicate	982488	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	11/04/2023	0967_SD049_230411	Normal	EP2304519	<0.0002	<0.0002	0.0019	<0.0002	0.0140	0.0002	<0.001	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	9/06/2023	0967_SD049_230609	Normal	EP2307633	<0.0002	<0.0002	0.0002	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	10/06/2023	0967_SD049_230610	Normal	EP2307677	<0.0002	<0.0002	<0.0002	<0.0002	0.0027	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	11/06/2023	0967_SD049_230611	Normal	EP2307679	<0.0002	<0.0002	0.0014	<0.0002	0.0062	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	12/06/2023	0967_SD049_230612	Normal	EP2307719	<0.0002	<0.0002	0.0003	<0.0002	0.0041	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	13/06/2023	0967_QC123_230613	Field Duplicate	EP2307805	<0.0002	<0.0002	0.0002	<0.0002	0.0021	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	13/06/2023	0967_QC223_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	SD049	13/06/2023	0967_SD049_230613	Normal	EP2307805	<0.0002	<0.0002	<0.0002	<0.0002	0.0032	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	19/09/2023	0967_SD049_230918	Normal	EP2312966	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	28/04/2017	RE_SS30	Normal	EP1704272	<0.0002		<0.0002		0.0002		<0.001	<0.0002	<0.0002	<0.0002	<0.0002						<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	24/08/2017	RE_SS30	Normal	EP1709164	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	8/03/2019	0967_QC109_190308	Field Duplicate	EP1902156	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	8/03/2019	0967_SD050_190308	Normal	EP1902156	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	8/03/2019	QC209_190308	Interlab Duplicate	223469	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
Ellen Brook	SD050	23/10/2019	0967_SD050_0.00-0.10_191	Normal	EP1910898	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD050	6/05/2020	0967_SD050_0.00-0.10_200	Normal	EP2004587	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

							PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
							Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting							0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																					
Ellen Brook	**SD050**	**22/10/2020**	**0967_SD050_201022**	**Normal**	**EP2011547**		<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**21/04/2021**	**0967_QC115_210421**	**Field Duplicate**	**EP2104355**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**21/04/2021**	**0967_QC215_210421**	**Interlab Duplicate**	**789955**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD050**	**21/04/2021**	**0967_SD050_210421**	**Normal**	**EP2104355**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**8/09/2021**	**0967_SD050_210908**	**Normal**	**EP2110528**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**21/04/2022**	**0967_SD050_220421**	**Normal**	**EP2204672**		<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**21/09/2022**	**0967_SD050_220921**	**Normal**	**EP2212259**		<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	0.002	0.0025	0.0018	0.0008	0.0028	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**11/04/2023**	**0967_QC103_230411**	**Field Duplicate**	**EP2304519**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**11/04/2023**	**0967_QC203_230411**	**Interlab Duplicate**	**982488**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Ellen Brook	**SD050**	**11/04/2023**	**0967_SD050_230411**	**Normal**	**EP2304519**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	**SD050**	**18/09/2023**	**0967_SD050_230918**	**Normal**	**EP2312966**		<0.0002	<0.0002	<0.0002	<0.0002	0.0038	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0024	<0.0024	<0.0024	<0.0006	<0.0005	<0.0005	<0.0024	<0.0024
West Bullsbrook	**SD053**	**25/08/2017**	**WB_SS33**	**Normal**	**EP1709257**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**8/03/2019**	**0967_SD053_190308**	**Normal**	**EP1902156**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**19/11/2019**	**0967_SD053_191119**	**Normal**	**EP1912125**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**13/05/2020**	**0967_SD053_0.00-0.10_200**	**Field Duplicate**	**EP2004875**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**13/05/2020**	**0967_SD053_0.00-0.10_200**	**Normal**	**EP2004875**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**14/10/2020**	**0967_SD053_201014**	**Normal**	**EP2011184**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**21/04/2021**	**0967_SD053_210421**	**Normal**	**EP2104355**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**6/09/2021**	**0967_SD053_210906**	**Normal**	**EP2110381**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**20/04/2022**	**0967_SD053_220420**	**Normal**	**EP2204595**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**21/09/2022**	**0967_SD053_220921**	**Normal**	**EP2212261**		<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**13/04/2023**	**0967_SD053_230413**	**Normal**	**EP2304670**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**14/09/2023**	**0967_QC116_230914**	**Field Duplicate**	**EP2312714**		<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD053**	**14/09/2023**	**0967_SD053_230914**	**Normal**	**EP2312714**		<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**25/08/2017**	**WB_SS35**	**Normal**	**EP1709257**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**8/03/2019**	**0967_SD055_190308**	**Normal**	**EP1902156**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**13/06/2019**	**0967_SD055_190613**	**Normal**	**EP1905805**		<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**14/06/2019**	**0967_SD055_190614**	**Normal**	**EP1905807**		<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**15/06/2019**	**0967_SD055_190615**	**Normal**	**EP1905844**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**16/06/2019**	**0967_SD055_190616**	**Normal**	**EP1905847**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**17/06/2019**	**0967_SD055_190617**	**Normal**	**EP1905846**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**19/11/2019**	**0967_SD055_191119**	**Normal**	**EP1912125**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**13/05/2020**	**0967_SD055_0.00-0.10_200**	**Normal**	**EP2004875**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**30/06/2020**	**0967_SD055_200630**	**Normal**	**EP2006827**		<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**1/07/2020**	**0967_SD055_200701**	**Normal**	**EP2006821**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**2/07/2020**	**0967_SD055_0.00-0.20_200**	**Normal**	**EP2006882**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**3/07/2020**	**0967_SD055_200703**	**Normal**	**EP2006958**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**4/07/2020**	**0967_SD055_200704**	**Normal**	**EP2006965**		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**14/10/2020**	**0967_SD055_201014**	**Normal**	**EP2011174**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**21/04/2021**	**0967_SD055_210421**	**Normal**	**EP2104358**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**31/05/2021**	**0967_SD055_210531**	**Normal**	**EP2106118**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**1/06/2021**	**0967_SD055_210601**	**Normal**	**EP2106151**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**2/06/2021**	**0967_SD055_210602**	**Normal**	**EP2106206**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**3/06/2021**	**0967_SD055_210603**	**Normal**	**EP2106283**		<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**4/06/2021**	**0967_SD055_210604**	**Normal**	**EP2106324**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**11/08/2021**	**0967_SD055_210811**	**Normal**	**EP2109323**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**25/08/2021**	**0967_SD055_210825**	**Normal**	**EP2109842**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**6/09/2021**	**0967_SD055_210906_0.10-**	**Normal**	**EP2110381**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**20/04/2022**	**0967_QC108_220420**	**Field Duplicate**	**EP2204595**		<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**20/04/2022**	**0967_QC208_220420**	**Interlab Duplicate**	**882820**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	**SD055**	**20/04/2022**	**0967_SD055_220420**	**Normal**	**EP2204595**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**21/06/2022**	**0967_QC104_220621**	**Field Duplicate**	**EP2207629**		<0.0002	<0.0002	0.0002	<0.0002	0.0038	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**21/06/2022**	**0967_QC204_220621**	**Interlab Duplicate**	**901657**		<0.0004	<0.0004	<0.0004	<0.0004	0.0008	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**21/06/2022**	**0967_SD055_220621**	**Normal**	**EP2207629**		<0.0002	<0.0002	0.0003	<0.0002	0.0026	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**22/06/2022**	**0967_QC109_220622**	**Field Duplicate**	**EP2207735**		<0.0002	<0.0002	<0.0002	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**22/06/2022**	**0967_QC209_220621**	**Interlab Duplicate**	**901660**		<0.0004	<0.0004	<0.0004	<0.0004	0.041	<0.0004	<0.0008	<0.0002	<0.0004	<0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**22/06/2022**	**0967_SD055_220622**	**Normal**	**EP2207735**		<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**23/06/2022**	**0967_SD055_220623**	**Normal**	**EP2207825**		<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**24/06/2022**	**0967_SD055_220624**	**Normal**	**EP2207892**		<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**25/06/2022**	**0967_SD055_220625**	**Normal**	**EP2207910**		<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**21/09/2022**	**0967_SD055_220921**	**Normal**	**EP2212261**		<0.0002	<0.0002	<0.0002	<0.0002	0.0030	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**13/04/2023**	**0967_SD055_230413**	**Normal**	**EP2304670**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**9/06/2023**	**0967_SD055_230609**	**Normal**	**EP2307633**		<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**10/06/2023**	**0967_SD055_230610**	**Normal**	**EP2307677**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**11/06/2023**	**0967_SD055_230611**	**Normal**	**EP2307679**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**12/06/2023**	**0967_SD055_230612**	**Normal**	**EP2307716**		<0.0002	<0.0002	<0.0002	<0.0002	0.0015	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**13/06/2023**	**0967_SD055_230613**	**Normal**	**EP2307805**		<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**14/09/2023**	**0967_SD055_230914**	**Normal**	**EP2312714**		<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**25/08/2017**	**WB_SS38**	**Normal**	**EP1709257**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**8/03/2019**	**0967_SD058_190308**	**Normal**	**EP1902156**		<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**13/06/2019**	**0967_SD058_190613**	**Normal**	**EP1905805**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**14/06/2019**	**0967_SD058_190614**	**Normal**	**EP1905807**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**15/06/2019**	**0967_QC122_190615**	**Field Duplicate**	**EP1905844**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**15/06/2019**	**0967_QC222_190615**	**Interlab Duplicate**	**228322**		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001
West Bullsbrook	**SD058**	**15/06/2019**	**0967_SD058_190615**	**Normal**	**EP1905844**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**16/06/2019**	**0967_SD058_190616**	**Normal**	**EP1905847**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**17/06/2019**	**0967_QC131_190617**	**Field Duplicate**	**EP1905846**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD058**	**17/06/

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
West Bullsbrook	SD058	28/10/2019	0967_SD058_191028	Normal	EP1911091	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	7/05/2020	0967_SD058_200507	Normal	EP2004665	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	30/06/2020	0967_SD058_200630	Normal	EP2006827	<0.0002	<0.0002	<0.0002	<0.0002	0.0043	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	1/07/2020	0967_SD058_200701	Normal	EP2006821	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	2/07/2020	0967_SD058_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	3/07/2020	0967_SD058_200703	Normal	EP2006958	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	4/07/2020	0967_SD058_200704	Normal	EP2006965	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	12/10/2020	0967_QC107_201012	Field Duplicate	EP2010997	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	12/10/2020	0967_QC207_201012	Interlab Duplicate	750345	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD058	12/10/2020	0967_SD058_201012	Normal	EP2010997	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	20/04/2021	0967_SD058_210420	Normal	EP2104291	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	31/05/2021	0967_SD058_210531	Normal	EP2106118	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	1/06/2021	0967_SD058_210601	Normal	EP2106151	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	2/06/2021	0967_SD058_210602	Normal	EP2106206	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	3/06/2021	0967_SD058_210603	Normal	EP2106283	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	4/06/2021	0967_SD058_210604	Normal	EP2106324	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	10/08/2021	0967_SD058_210810	Normal	EP2109323	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	24/08/2021	0967_SD058_210824	Normal	EP2109842	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	7/09/2021	0967_QC104_210907	Field Duplicate	EP2110444	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	7/09/2021	0967_QC204_210907	Interlab Duplicate	823604	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD058	7/09/2021	0967_SD058_210907	Normal	EP2110444	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	21/04/2022	0967_SD058_220421	Normal	EP2204669	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	21/06/2022	0967_SD058_220621	Normal	EP2207629	<0.0002	<0.0002	<0.0002	<0.0002	0.0020	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	22/06/2022	0967_SD058_220622	Normal	EP2207735	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	23/06/2022	0967_SD058_220623	Normal	EP2207825	<0.0002	<0.0002	<0.0002	<0.0002	0.0022	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	24/06/2022	0967_SD058_220624	Normal	EP2207892	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	25/06/2022	0967_SD058_220625	Normal	EP2207910	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	19/09/2022	0967_SD058_220919	Normal	EP2212079	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	11/04/2023	0967_SD058_0.10_230411	Normal	EP2304519	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	9/06/2023	0967_SD058_230609	Normal	EP2307633	<0.0002	<0.0002	0.0003	<0.0002	0.0028	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	10/06/2023	0967_SD058_230610	Normal	EP2307674	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	11/06/2023	0967_SD058_230611	Normal	EP2307679	<0.0002	<0.0002	<0.0002	<0.0002	0.0016	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	12/06/2023	0967_SD058_230612	Normal	EP2307719	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	13/06/2023	0967_SD058_230613	Normal	EP2307805	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	14/09/2023	0967_QC114_230914	Field Duplicate	EP2312714	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	14/09/2023	0967_QC214_230914	Interlab Duplicate	1026632	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD058	14/09/2023	0967_SD058_230914	Normal	EP2312714	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	25/08/2017	WB_SS40	Normal	EP1709257	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	7/03/2019	0967_SD060_190307	Normal	EP1902154	<0.0002	<0.0002	0.0006	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	13/06/2019	0967_SD060_190613	Normal	EP1905805	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	14/06/2019	0967_SD060_190614	Normal	EP1905807	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	15/06/2019	0967_SD060_190615	Normal	EP1905844	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	16/06/2019	0967_SD060_190616	Normal	EP1905847	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	17/06/2019	0967_SD060_190617	Normal	EP1905846	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	7/11/2019	0967_SD060_191107	Normal	EP1911619	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	7/05/2020	0967_SD060_200507	Normal	EP2004665	<0.0002	<0.0002	0.0012	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	30/06/2020	0967_SD060_200630	Normal	EP2006824	<0.0002	<0.0002	0.0003	<0.0002	0.0010	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	1/07/2020	0967_SD060_200701	Normal	EP2006821	<0.0002	<0.0002	0.0003	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	2/07/2020	0967_SD060_200702	Normal	EP2006882	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	3/07/2020	0967_SD060_200703	Normal	EP2006958	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	4/07/2020	0967_SD060_200704	Normal	EP2006965	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	14/10/2020	0967_SD060_201014	Normal	EP2011174	<0.0002	<0.0002	0.0006	<0.0002	0.0027	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	20/04/2021	0967_SD060_210420	Normal	EP2104291	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	31/05/2021	0967_QC103_210531	Field Duplicate	EP2106118	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	31/05/2021	0967_SD060_210531	Normal	EP2106118	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	1/06/2021	0967_QC104_210601	Field Duplicate	EP2106151	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	1/06/2021	0967_QC204_210601	Interlab Duplicate	800042	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD060	1/06/2021	0967_SD060_210601	Normal	EP2106151	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	2/06/2021	0967_SD060_210602	Normal	EP2106206	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	3/06/2021	0967_SD060_210603	Normal	EP2106283	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	4/06/2021	0967_SD060_210604	Normal	EP2106324	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	24/08/2021	0967_SD060_210824	Normal	EP2109842	<0.0002	<0.0002	0.0010	<0.0002	0.0139	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	7/09/2021	0967_QC105_210907	Field Duplicate	EP2110444	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	7/09/2021	0967_QC205_210907	Interlab Duplicate	823604	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD060	7/09/2021	0967_SD060_210907	Normal	EP2110444	<0.0002	<0.0002	0.0008	<0.0002	0.0119	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	20/04/2022	0967_SD060_220420	Normal	EP2204595	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	21/06/2022	0967_SD060_220621	Normal	EP2207629	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	22/06/2022	0967_SD060_220622	Normal	EP2207735	<0.0002	<0.0002	<0.0002	<0.0002	0.0012	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	23/06/2022	0967_SD060_220623	Normal	EP2207825	<0.0002	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	24/06/2022	0967_SD060_220624	Normal	EP2207892	<0.0002	<0.0002	<0.0002	<0.0002	0.0017	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	25/06/2022	0967_SD060_220625	Normal	EP2207910	<0.0002	<0.0002	0.0004	<0.0002	0.0018	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	19/09/2022	0967_SD060_220919	Normal	EP2212079	<0.0002	<0.0002	<0.0002	<0.0002	0.0043	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	11/04/2023	0967_SD060_0.10_230411	Normal	EP2304519	<0.0002	<0.0002	0.0005	<0.0002	0.0024	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	9/06/2023	0967_SD060_230609	Normal	EP2307633	<0.0002	<0.0002	<0.0002	<0.0002	0.0054	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	10/06/2023	0967_SD060_230610	Normal	EP2307674	<0.0002	<0.0002	<0.0002	<0.0002	0.0010	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	11/06/2023	0967_SD060_230611	Normal	EP2307679	<0.0002	<0.0002	0.0003	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	12/06/2023	0967_QC119_230612	Field Duplicate	EP2307719	<0.0002	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	12/06/2023	0967_QC219_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
West Bullsbrook	SD060	12/06/2023	0967_SD060_230612	Normal	EP2307719	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD060	13/06/2023	0967_SD060_230613	Normal	EP2307805	<0.0002	<0.0002	0.0004	<0.0002	0.0010	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Table 5 - Sediment Analytical Results

PFAS OMP
RAAF Base Pearce

						PFAS - Perfluoroalkyl Sulfonic Acids						PFAS - Perfluoroalkyl Carboxylic Acids										PFAS - (n:2) Fluorotelomer Sulfonic Acids			
						Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecane sulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Number**																				
West Bullsbrook	**SD060**	**14/09/2023**	**0967_SD060_230914**	**Normal**	**EP2312714**	<0.0002	<0.0002	0.0003	<0.0002	0.0039	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**30/08/2017**	**TS01**	**Normal**	**EP1709385**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**11/03/2019**	**0967_SD061_190311**	**Normal**	**EP1902248**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**13/06/2019**	**0967_SD061_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**4/12/2019**	**0967_SD061_191204**	**Normal**	**EP1912894**	<0.0002	<0.0002	0.0002	<0.0002	0.0011	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**7/05/2020**	**0967_SD061_200507**	**Normal**	**EP2004665**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**30/06/2020**	**0967_SD061_200630**	**Normal**	**EP2006824**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**1/07/2020**	**0967_SD061_200701**	**Normal**	**EP2006821**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**2/07/2020**	**0967_SD061_0.00-0.10_200**	**Normal**	**EP2006882**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**3/07/2020**	**0967_SD061_200703**	**Normal**	**EP2006958**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**4/07/2020**	**0967_SD061_200704**	**Normal**	**EP2006965**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**22/10/2020**	**0967_SD061_201022**	**Normal**	**EP2011547**	<0.0002	<0.0002	0.0002	<0.0002	0.0013	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**19/04/2021**	**0967_SD061_210419**	**Normal**	**EP2104210**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**31/05/2021**	**0967_SD061_210531**	**Normal**	**EP2106118**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**1/06/2021**	**0967_SD061_210601**	**Normal**	**EP2106151**	<0.0002	0.0004	0.0080	0.0011	0.0795	0.0012	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**2/06/2021**	**0967_SD061_210602**	**Normal**	**EP2106206**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**3/06/2021**	**0967_SD061_210603**	**Normal**	**EP2106283**	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**4/06/2021**	**0967_SD061_210604**	**Normal**	**EP2106324**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**8/09/2021**	**0967_SD061_210908**	**Normal**	**EP2110528**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**21/04/2022**	**0967_SD061_220421**	**Normal**	**EP2204672**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**21/06/2022**	**0967_SD061_220621**	**Normal**	**EP2207629**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**22/06/2022**	**0967_SD061_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**23/06/2022**	**0967_SD061_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**24/06/2022**	**0967_SD061_220624**	**Normal**	**EP2207894**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**25/06/2022**	**0967_SD061_220625**	**Normal**	**EP2207910**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**21/09/2022**	**0967_SD061_220921**	**Normal**	**EP2212259**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**11/04/2023**	**0967_SD061_230411**	**Normal**	**EP2304519**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**9/06/2023**	**0967_SD061_230609**	**Normal**	**EP2307633**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**10/06/2023**	**0967_SD061_230610**	**Normal**	**EP2307677**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**11/06/2023**	**0967_SD061_230611**	**Normal**	**EP2307679**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**12/06/2023**	**0967_SD061_230612**	**Normal**	**EP2307719**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**13/06/2023**	**0967_SD061_230613**	**Normal**	**EP2307805**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD061**	**18/09/2023**	**0967_SD061_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**30/08/2017**	**TS02**	**Normal**	**EP1709385**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**11/03/2019**	**0967_SD062_190311**	**Normal**	**EP1902248**	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**13/06/2019**	**0967_SD062_190613**	**Normal**	**EP1905805**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**4/12/2019**	**0967_SD062_191204**	**Normal**	**EP1912894**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**7/05/2020**	**0967_SD062_200507**	**Normal**	**EP2004665**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**30/06/2020**	**0967_SD062_200630**	**Normal**	**EP2006824**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**1/07/2020**	**0967_SD062_200701**	**Normal**	**EP2006821**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**2/07/2020**	**0967_SD062_0.00-0.20_200**	**Normal**	**EP2006882**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**3/07/2020**	**0967_SD062_200703**	**Normal**	**EP2006958**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**4/07/2020**	**0967_SD062_200704**	**Normal**	**EP2006965**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**22/10/2020**	**0967_SD062_201022**	**Normal**	**EP2011547**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**19/04/2021**	**0967_SD062_210419**	**Normal**	**EP2104210**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**31/05/2021**	**0967_SD062_210531**	**Normal**	**EP2106118**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**1/06/2021**	**0967_SD062_210601**	**Normal**	**EP2106151**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**2/06/2021**	**0967_SD062_210602**	**Normal**	**EP2106206**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**3/06/2021**	**0967_SD062_210603**	**Normal**	**EP2106283**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**4/06/2021**	**0967_SD062_210604**	**Normal**	**EP2106324**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**8/09/2021**	**0967_SD062_210908**	**Normal**	**EP2110528**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**21/04/2022**	**0967_SD062_220421**	**Normal**	**EP2204672**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**21/06/2022**	**0967_SD062_220621**	**Normal**	**EP2207629**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**22/06/2022**	**0967_SD062_220622**	**Normal**	**EP2207735**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**23/06/2022**	**0967_SD062_220623**	**Normal**	**EP2207825**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**24/06/2022**	**0967_SD062_220624**	**Normal**	**EP2207894**	<0.0002	<0.0002	0.0003	<0.0002	0.0068	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**25/06/2022**	**0967_SD062_220625**	**Normal**	**EP2207910**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**20/09/2022**	**0967_QC217_220920**	**Interlab Duplicate**	**926012**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Twin Swamps NR	**SD062**	**21/09/2022**	**0967_QC117_220921**	**Field Duplicate**	**EP2212259**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**21/09/2022**	**0967_SD062_220921**	**Normal**	**EP2212259**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**11/04/2023**	**0967_SD062_230411**	**Normal**	**EP2304519**	<0.0002	<0.0002	<0.0002	<0.0002	0.0019	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**9/06/2023**	**0967_QC104_230609**	**Field Duplicate**	**EP2307633**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**9/06/2023**	**0967_QC204_230609**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Twin Swamps NR	**SD062**	**9/06/2023**	**0967_SD062_230609**	**Normal**	**EP2307633**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**10/06/2023**	**0967_QC107_230610**	**Field Duplicate**	**EP2307677**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**10/06/2023**	**0967_QC207_230610**	**Interlab Duplicate**	**999535**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005
Twin Swamps NR	**SD062**	**10/06/2023**	**0967_SD062_230610**	**Normal**	**EP2307677**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**11/06/2023**	**0967_SD062_230611**	**Normal**	**EP2307679**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**12/06/2023**	**0967_SD062_230612**	**Normal**	**EP2307719**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**13/06/2023**	**0967_SD062_230613**	**Normal**	**EP2307805**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Twin Swamps NR	**SD062**	**18/09/2023**	**0967_SD062_230918**	**Normal**	**EP2312966**	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0014	<0.0005	<0.0005	<0.0005	<0.0005

Notes:
First time detection of PFOA or PFHxS+PFOS

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
On-site drainage channels	SD002	19/09/2016	PD_SS02	Normal	EP1608751								0.0582	0.0627	
On-site drainage channels	SD002	5/03/2019	0967_SD002_190305	Normal	EP1902013	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0381	0.0396	0.0409
On-site drainage channels	SD002	13/06/2019	0967_QC112_190613	Field Duplicate	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0418	0.0418	0.0423
On-site drainage channels	SD002	13/06/2019	0967_QC212_190613	Interlab Duplicate	228248	<0.002	<0.002	<0.0004	<0.002	<0.002	<0.0004	<0.01	0.036		0.036
On-site drainage channels	SD002	13/06/2019	0967_SD002_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0179	0.0179	0.0181
On-site drainage channels	SD002	14/06/2019	0967_SD002_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0404	0.0404	0.0413
On-site drainage channels	SD002	15/06/2019	0967_SD002_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0788	0.0795	0.0801
On-site drainage channels	SD002	16/06/2019	0967_SD002_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0199	0.0199	0.0202
On-site drainage channels	SD002	17/06/2019	0967_SD002_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0237	0.0237	0.0237
On-site drainage channels	SD002	28/10/2019	0967_SD002_0.00-0.10_191	Normal	EP1911089	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0140	0.0142	0.0142
On-site drainage channels	SD002	12/05/2020	0967_SD002_0.00-0.10_200	Normal	EP2004830	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0496	0.0499	0.0508
On-site drainage channels	SD002	1/07/2020	0967_QC102_200701	Field Duplicate	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0445	0.0454	0.0462
On-site drainage channels	SD002	1/07/2020	0967_QC202_01072020	Interlab Duplicate	729577	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.08	0.08	0.08
On-site drainage channels	SD002	1/07/2020	0967_SD002_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0454	0.0462	0.0474
On-site drainage channels	SD002	2/07/2020	0967_SD002_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0315	0.0319	0.0324
On-site drainage channels	SD002	3/07/2020	0967_SD002_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.141	0.146	0.148
On-site drainage channels	SD002	4/07/2020	0967_SD002_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0977	0.0977	0.0977
On-site drainage channels	SD002	13/10/2020	0967_SD002_201013	Normal	EP2011098	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.248	0.251	0.256
On-site drainage channels	SD002	29/04/2021	0967_SD002_210429	Normal	EP2104726	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0524	0.0531	0.0546
On-site drainage channels	SD002	31/05/2021	0967_SD002_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.138	0.140	0.145
On-site drainage channels	SD002	20/09/2021	0967_SD002_210920	Normal	EP2111138	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0116	0.0127	0.0191
On-site drainage channels	SD002	28/04/2022	0967_SD002_220428	Normal	EP2204965	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0187	0.0187	0.0187
On-site drainage channels	SD002	21/06/2022	0967_SD002_220621	Normal	EP2207629	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0572	0.0575	0.0586
On-site drainage channels	SD002	22/06/2022	0967_SD002_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0736	0.0758	0.0784
On-site drainage channels	SD002	23/06/2022	0967_SD002_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0191	0.0191	0.0193
On-site drainage channels	SD002	24/06/2022	0967_QC114_220624	Field Duplicate	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0281	0.0281	0.0285
On-site drainage channels	SD002	24/06/2022	0967_QC214_220624	Interlab Duplicate	902459	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.0074	0.023	0.023
On-site drainage channels	SD002	24/06/2022	0967_SD002_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0219	0.0219	0.0224
On-site drainage channels	SD002	25/06/2022	0967_SD002_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0395	0.0397	0.0408
On-site drainage channels	SD002	26/09/2022	0967_SD002_220926	Normal	EP2212404	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.149	0.153	0.160
On-site drainage channels	SD002	17/04/2023	0967_SD002_230417	Normal	EP2304862	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0033	0.0033
On-site drainage channels	SD002	9/06/2023	0967_SD002_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0274	0.0303	0.0471
On-site drainage channels	SD002	10/06/2023	0967_SD002_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0139	0.0148	0.0160
On-site drainage channels	SD002	11/06/2023	0967_QC109_230611	Field Duplicate	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0316	0.0319	0.0324
On-site drainage channels	SD002	11/06/2023	0967_QC209_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.022	0.022	<0.05
On-site drainage channels	SD002	11/06/2023	0967_SD002_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0146	0.0146	0.0146
On-site drainage channels	SD002	12/06/2023	0967_SD002_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0198	0.0225	0.0297
On-site drainage channels	SD002	13/06/2023	0967_SD002_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0052	0.0068	0.0075
On-site drainage channels	SD002	25/09/2023	0967_SD002_230925	Normal	EP2313265	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0116	0.0123	0.0137
On-site drainage channels	SD007	19/09/2016	PD_SS07	Normal	EP1608751								2.47	2.68	
On-site drainage channels	SD007	6/03/2019	0967_SD007_190306	Normal	EP1902092	0.0175	<0.0005	0.0002	<0.0005	<0.0005	0.0003	<0.0005	1.70	1.82	1.92
On-site drainage channels	SD007	13/06/2019	0967_SD007_190613	Normal	EP1905805	0.0229	0.0006	0.0002	<0.0005	<0.0005	0.0004	<0.0005	1.53	1.55	1.62
On-site drainage channels	SD007	14/06/2019	0967_SD007_190614	Normal	EP1905807	0.0276	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	1.07	1.10	1.18
On-site drainage channels	SD007	15/06/2019	0967_SD007_190615	Normal	EP1905844	0.0276	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	1.04	1.08	1.14
On-site drainage channels	SD007	16/06/2019	0967_SD007_190616	Normal	EP1905847	0.0324	0.0009	<0.0002	<0.0005	<0.0005	0.0003	<0.0005	1.11	1.14	1.22
On-site drainage channels	SD007	17/06/2019	0967_SD007_190617	Normal	EP1905846	0.0757	0.0021	0.0004	<0.0005	<0.0005	0.0004	<0.0005	6.34	6.42	6.60
On-site drainage channels	SD007	29/10/2019	0967_SD007_0.00-0.10_191	Normal	EP1911154	0.0212	<0.0005	<0.0002	<0.0005	<0.0005	0.0007	<0.0005	1.42	1.47	1.56
On-site drainage channels	SD007	12/05/2020	0967_SD007_0.00-0.10_200	Normal	EP2004830	0.0988	<0.0012	<0.0005	<0.0012	<0.0012	0.0006	<0.0012	3.46	3.50	3.73
On-site drainage channels	SD007	1/07/2020	0967_SD007_200701	Normal	EP2006823	0.0813	0.0030	0.0005	<0.0005	<0.0005	0.0010	<0.0005	3.48	3.52	3.70
On-site drainage channels	SD007	2/07/2020	0967_SD007_200702	Normal	EP2006907	0.0284	<0.0005	<0.0002	<0.0005	<0.0005	0.0003	<0.0005	2.08	2.11	2.18
On-site drainage channels	SD007	3/07/2020	0967_SD007_200703	Normal	EP2006943	0.0072	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.921	0.964	0.983
On-site drainage channels	SD007	4/07/2020	0967_SD007_200704	Normal	EP2006972	0.505	<0.0062	<0.0025	<0.0062	<0.0062	0.0124	<0.0062	23.0	23.4	25.0
On-site drainage channels	SD007	13/10/2020	0967_SD007_201013	Normal	EP2011098	0.310	<0.0025	<0.0010	<0.0025	<0.0025	<0.0010	<0.0025	19.2	19.4	20.1
On-site drainage channels	SD007	29/04/2021	0967_SD007_210429	Normal	EP2104726	0.0125	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	2.93	2.99	3.10
On-site drainage channels	SD007	31/05/2021	0967_SD007_210531	Normal	EP2106117	0.290	0.0011	0.0007	<0.0005	<0.0005	0.0022	<0.0005	7.57	7.70	8.36
On-site drainage channels	SD007	1/06/2021	0967_SD007_210601	Normal	EP2106133	0.385	0.0036	0.0020	<0.0005	<0.0005	0.0033	<0.0005	8.80	8.92	9.88
On-site drainage channels	SD007	2/06/2021	0967_SD007_210602	Normal	EP2106196	0.0885	0.0006	0.0002	<0.0005	<0.0005	0.0006	<0.0005	5.54	5.59	5.93
On-site drainage channels	SD007	3/06/2021	0967_SD007_210603	Normal	EP2106263	0.224	<0.0025	<0.0010	<0.0025	<0.0025	<0.0010	<0.0025	5.65	5.74	6.20
On-site drainage channels	SD007	4/06/2021	0967_SD007_210604	Normal	EP2106322	0.184	0.0024	0.0005	<0.0005	<0.0005	0.0018	<0.0005	6.04	6.16	6.81
On-site drainage channels	SD007	20/09/2021	0967_SD007_210920	Normal	EP2111138	0.781	0.0131	0.0018	<0.0005	<0.0005	0.0041	<0.0005	37.1	37.3	40.3
On-site drainage channels	SD007	28/04/2022	0967_SD007_220428	Normal	EP2204965	0.0072	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	1.14	1.16	1.22
On-site drainage channels	SD007	21/06/2022	0967_SD007_220621	Normal	EP2207629	0.244	0.0026	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	8.98	9.05	9.69
On-site drainage channels	SD007	22/06/2022	0967_SD007_220622	Normal	EP2207735	0.132	0.0027	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	3.49	3.53	3.92
On-site drainage channels	SD007	23/06/2022	0967_SD007_220623	Normal	EP2207825	0.222	0.0038	0.0006	<0.0005	<0.0005	0.0008	<0.0005	7.73	7.79	8.36
On-site drainage channels	SD007	24/06/2022	0967_SD007_220624	Normal	EP2207892	0.121	0.0048	0.0004	<0.0005	<0.0005	0.0010	<0.0005	6.24	6.29	6.64
On-site drainage channels	SD007	25/06/2022	0967_SD007_220625	Normal	EP2207910	0.166	0.0060	0.0007	<0.0005	<0.0005	<0.0002	<0.0005	7.40	7.48	8.00
On-site drainage channels	SD007	26/09/2022	0967_SD007_220926	Normal	EP2212404	0.409	<0.0025	<0.0010	<0.0025	<0.0025	<0.0010	<0.0025	19.1	19.3	20.4
On-site drainage channels	SD007	24/04/2023	0967_SD007_230424	Normal	EP2305260	0.180	0.0067	0.0009	<0.0005	<0.0005	0.0029	<0.0005	4.54	4.60	5.05
On-site drainage channels	SD007	9/06/2023	0967_SD007_230609	Normal	EP2307642	0.244	0.0049	0.0002	<0.0005	<0.0005	0.0018	<0.0005	8.78	8.87	9.52
On-site drainage channels	SD007	10/06/2023	0967_SD007_230610	Normal	EP2307674	0.0257	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	2.18	2.20	2.28
On-site drainage channels	SD007	11/06/2023	0967_SD007_230611	Normal	EP2307679	0.0651	0.0010	<0.0002	<0.0005	<0.0005	0.0007	<0.0005	2.24	2.26	2.58
On-site drainage channels	SD007	12/06/2023	0967_SD007_230612	Normal	EP2307716	0.113	0.0039	0.0007	<0.0005	<0.0005	0.0009	<0.0005	2.89	2.93	3.19
On-site drainage channels	SD007	13/06/2023	0967_SD007_230613	Normal	EP2307799	0.194	0.0033	0.0002	<0.0005	<0.0005	0.0009	<0.0005	5.41	5.47	5.90
On-site drainage channels	SD007	25/09/2023	0967_SD007_230925	Normal	EP2313265	0.162	0.0018	0.0008	<0.0005	<0.0005	0.0018	<0.0005	7.34	7.52	7.99
On-site drainage channels	SD013	19/09/2016	PD_SS13	Normal	EP1608751								0.138	0.144	
On-site drainage channels	SD013	6/03/2019	0967_QC104_190306	Field Duplicate	EP1902092	0.0034	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.219	0.235	0.252
On-site drainage channels	SD013	6/03/2019	0967_QC204_190306	Interlab Duplicate	223429	0.005	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.43		0.48
On-site drainage channels	SD013	6/03/2019	0967_SD013_190306	Normal	EP1902092	0.0038	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.209	0.232	0.246

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
On-site drainage channels	SD013	28/10/2019	0967_SD013_0.00-0.10_191	Normal	EP1911089	0.0126	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.177	0.189	0.216
On-site drainage channels	SD013	12/05/2020	0967_SD013_0.00-0.10_200	Normal	EP2004830	0.0101	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.216	0.238	0.273
On-site drainage channels	SD013	13/10/2020	0967_SD013_201013	Normal	EP2011098	0.0135	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.252	0.265	0.291
On-site drainage channels	SD013	29/04/2021	0967_SD013_210429	Normal	EP2104726	0.0084	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.411	0.420	0.451
On-site drainage channels	SD013	20/09/2021	0967_SD013_210920	Normal	EP2111138	0.0102	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.292	0.297	0.328
On-site drainage channels	SD013	28/04/2022	0967_SD013_220428	Normal	EP2204965	0.0054	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.294	0.326	0.349
On-site drainage channels	SD013	26/09/2022	0967_SD013_220926	Normal	EP2212404	0.0150	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.441	0.452	0.510
On-site drainage channels	SD013	24/04/2023	0967_SD013_230424	Normal	EP2305260	0.0085	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.425	0.429	0.454
On-site drainage channels	SD013	25/09/2023	0967_SD013_230925	Normal	EP2313265	0.0023	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.285	0.288	0.300
On-site drainage channels	SD015	19/09/2016	PD_SS15	Normal	EP1608751								0.0147	0.0151	
On-site drainage channels	SD015	9/10/2017	PD_SS15	Normal	EP1711281										
On-site drainage channels	SD015	6/03/2019	0967_SD015_190306	Normal	EP1902092	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0338	0.0369	0.0397
On-site drainage channels	SD015	13/06/2019	0967_SD015_190613	Normal	EP1905805	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0716	0.0742	0.0778
On-site drainage channels	SD015	14/06/2019	0967_SD015_190614	Normal	EP1905807	0.0018	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.107	0.110	0.116
On-site drainage channels	SD015	15/06/2019	0967_SD015_190615	Normal	EP1905844	0.0010	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0527	0.0542	0.0567
On-site drainage channels	SD015	16/06/2019	0967_SD015_190616	Normal	EP1905847	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0216	0.0224	0.0234
On-site drainage channels	SD015	17/06/2019	0967_SD015_190617	Normal	EP1905846	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0234	0.0243	0.0255
On-site drainage channels	SD015	28/10/2019	0967_SD015_0.00-0.10_191	Normal	EP1911089	0.0019	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0813	0.0911	0.0985
On-site drainage channels	SD015	12/05/2020	0967_SD015_0.00-0.10_200	Normal	EP2004830	0.0084	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.231	0.246	0.280
On-site drainage channels	SD015	1/07/2020	0967_SD015_200701	Normal	EP2006823	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0975	0.101	0.106
On-site drainage channels	SD015	2/07/2020	0967_SD015_200702	Normal	EP2006907	0.0010	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0362	0.0380	0.0404
On-site drainage channels	SD015	3/07/2020	0967_QC102_200703	Field Duplicate	EP2006943	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0097	0.0099	0.0113
On-site drainage channels	SD015	3/07/2020	0967_QC202_200703	Interlab Duplicate	730322	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.2397	0.2397	0.2397
On-site drainage channels	SD015	3/07/2020	0967_SD015_200703	Normal	EP2006943	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0838	0.0862	0.0904
On-site drainage channels	SD015	4/07/2020	0967_SD015_200704	Normal	EP2006972	0.0017	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0287	0.0287	0.0332
On-site drainage channels	SD015	13/10/2020	0967_SD015_201013	Normal	EP2011098	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0163	0.0165	0.0183
On-site drainage channels	SD015	29/04/2021	0967_SD015_210429	Normal	EP2104726	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0158	0.0162	0.0186
On-site drainage channels	SD015	31/05/2021	0967_SD015_210531	Normal	EP2106117	0.0030	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.141	0.145	0.155
On-site drainage channels	SD015	1/06/2021	0967_QC102_210601	Field Duplicate	EP2106133	0.0022	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.200	0.204	0.214
On-site drainage channels	SD015	1/06/2021	0967_QC202_210601	Interlab Duplicate	800042	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.1685	0.1685	0.1685
On-site drainage channels	SD015	1/06/2021	0967_SD015_210601	Normal	EP2106133	0.0029	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.229	0.234	0.249
On-site drainage channels	SD015	2/06/2021	0967_SD015_210602	Normal	EP2106196	0.0017	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0674	0.0702	0.0752
On-site drainage channels	SD015	3/06/2021	0967_SD015_210603	Normal	EP2106263	0.0030	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.158	0.162	0.170
On-site drainage channels	SD015	4/06/2021	0967_QC114_210604	Field Duplicate	EP2106322	0.0016	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0966	0.0995	0.106
On-site drainage channels	SD015	4/06/2021	0967_QC214_210604	Interlab Duplicate	801498	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.138	0.138	0.138
On-site drainage channels	SD015	4/06/2021	0967_SD015_210604	Normal	EP2106322	0.0015	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0871	0.0901	0.0961
On-site drainage channels	SD015	9/08/2021	0967_SD015_210809	Normal	EP2109323	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0808	0.0810	0.0898
On-site drainage channels	SD015	24/08/2021	0967_SD015_210824	Normal	EP2109842	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.104	0.106	0.115
On-site drainage channels	SD015	20/09/2021	0967_SD015_210920	Normal	EP2111138	0.0021	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.142	0.144	0.152
On-site drainage channels	SD015	28/04/2022	0967_SD015_220428	Normal	EP2204965	0.0029	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.108	0.120	0.128
On-site drainage channels	SD015	21/06/2022	0967_SD015_220621	Normal	EP2207629	0.0012	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0388	0.0392	0.0419
On-site drainage channels	SD015	22/06/2022	0967_SD015_220622	Normal	EP2207735	0.0021	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.126	0.128	0.137
On-site drainage channels	SD015	23/06/2022	0967_SD015_220623	Normal	EP2207825	0.0010	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0407	0.0410	0.0431
On-site drainage channels	SD015	24/06/2022	0967_SD015_220624	Normal	EP2207892	0.0015	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.113	0.115	0.120
On-site drainage channels	SD015	26/09/2022	0967_SD015_220926	Normal	EP2212404	0.0012	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0485	0.0512	0.0545
On-site drainage channels	SD015	24/04/2023	0967_SD015_230424	Normal	EP2305260	0.0057	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.226	0.241	0.260
On-site drainage channels	SD015	9/06/2023	0967_SD015_230609	Normal	EP2307642	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0989	0.101	0.105
On-site drainage channels	SD015	10/06/2023	0967_SD015_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0121	0.0121	0.0128
On-site drainage channels	SD015	11/06/2023	0967_SD015_230611	Normal	EP2307679	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0712	0.0733	0.0768
On-site drainage channels	SD015	12/06/2023	0967_SD015_230612	Normal	EP2307716	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0292	0.0308	0.0319
On-site drainage channels	SD015	13/06/2023	0967_SD015_230613	Normal	EP2307799	0.0024	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.122	0.126	0.136
On-site drainage channels	SD015	25/09/2023	0967_SD015_230925	Normal	EP2313265	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0221	0.0234	0.0243
On-site drainage channels	SD018	19/09/2016	PD_SS18	Normal	EP1608751								0.0116	0.0121	
On-site drainage channels	SD018	19/09/2016	SS_FD02	Field Duplicate	EP1608751								0.0126	0.0126	
On-site drainage channels	SD018	19/09/2016	SS_FS02	Interlab Duplicate	186091										
On-site drainage channels	SD018	5/03/2019	0967_SD018_190305	Normal	EP1902013	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0094	0.0094	0.0094
On-site drainage channels	SD018	6/03/2019	0967_SD018_190306	Normal	EP1902092	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0283	0.0283	0.0287
On-site drainage channels	SD018	28/10/2019	0967_SD018_0.00-0.10_191	Normal	EP1911089	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0429	0.0439	0.0442
On-site drainage channels	SD018	12/05/2020	0967_SD018_0.00-0.10_200	Normal	EP2004830	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.101	0.102	0.104
On-site drainage channels	SD018	4/07/2020	0967_SD018_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0602	0.0602	0.0602
On-site drainage channels	SD018	13/10/2020	0967_SD018_201013	Normal	EP2011098	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.122	0.123	0.126
On-site drainage channels	SD018	29/04/2021	0967_SD018_210429	Normal	EP2104726	0.0014	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.147	0.148	0.151
On-site drainage channels	SD018	20/09/2021	0967_SD018_210920	Normal	EP2111138	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0724	0.0727	0.0751
On-site drainage channels	SD018	21/04/2022	0967_SD018_220421	Normal	EP2204669	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
On-site drainage channels	SD018	26/09/2022	0967_SD018_220926	Normal	EP2212404	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.118	0.120	0.123
On-site drainage channels	SD018	12/04/2023	0967_SD018_230412	Normal	EP2304598	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0406	0.0478	0.0507
On-site drainage channels	SD018	25/09/2023	0967_SD018_230925	Normal	EP2313265	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0061	0.0061
On-site drainage channels	SD020	19/09/2016	PD_SS20	Normal	EP1608751								0.0124	0.0129	
On-site drainage channels	SD020	9/10/2017	PD_SS20	Normal	EP1711281										
On-site drainage channels	SD020	5/03/2019	0967_SD020_190305	Normal	EP1902013	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0147	0.0169	0.0175
On-site drainage channels	SD020	13/06/2019	0967_SD020_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0174	0.0182	0.0184
On-site drainage channels	SD020	14/06/2019	0967_QC116_190614	Field Duplicate	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0048	0.0048	0.0048
On-site drainage channels	SD020	14/06/2019	0967_QC216_190614	Interlab Duplicate	228247	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.0077		0.0080
On-site drainage channels	SD020	14/06/2019	0967_SD020_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0053	0.0103	0.0103
On-site drainage channels	SD020	15/06/2019	0967_SD020_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0113	0.0113	0.0113
On-site drainage channels	SD020	16/06/2019	0967_QC125_190616	Field Duplicate	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
On-site drainage channels	SD020	16/06/2019	0967_QC225_190616	Interlab Duplicate	228321	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.026		0.028
On-site drainage channels	SD020	16/06/2019	0967_SD020_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0169	0.0177	0.0179
On-site drainage channels	SD020	17/06/2019	0967_SD020_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0043
On-site drainage channels	SD020	28/10/2019	0967_SD020_0.00-0.10_191	Normal	EP1911089	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0057	0.0057	0.0057

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
On-site drainage channels	SD020	12/05/2020	0967_SD020_0.00-0.10_200	Normal	EP2004830	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0237	0.0262	0.0268
On-site drainage channels	SD020	1/07/2020	0967_SD020_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0079	0.0083	0.0083
On-site drainage channels	SD020	2/07/2020	0967_QC103_200702	Field Duplicate	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0066	0.0068	0.0068
On-site drainage channels	SD020	2/07/2020	0967_QC203_200702	Interlab Duplicate	729906	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
On-site drainage channels	SD020	2/07/2020	0967_SD020_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0100	0.0100	0.0100
On-site drainage channels	SD020	3/07/2020	0967_SD020_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0193	0.0197	0.0199
On-site drainage channels	SD020	4/07/2020	0967_SD020_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0213	0.0223	0.0223
On-site drainage channels	SD020	13/10/2020	0967_SD020_201013	Normal	EP2011098	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0123	0.0123	0.0123
On-site drainage channels	SD020	20/04/2021	0967_SD020_210420	Normal	EP2104292	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0175	0.0177	0.0180
On-site drainage channels	SD020	31/05/2021	0967_SD020_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0139	0.0139	0.0139
On-site drainage channels	SD020	1/06/2021	0967_SD020_210601	Normal	EP2106133	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0184	0.0184	0.0184
On-site drainage channels	SD020	2/06/2021	0967_QC106_210602	Field Duplicate	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0190	0.0190	0.0192
On-site drainage channels	SD020	2/06/2021	0967_QC206_210602	Interlab Duplicate	800405	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.01	0.01	<0.05
On-site drainage channels	SD020	2/06/2021	0967_SD020_210602	Normal	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0108	0.0108	0.0108
On-site drainage channels	SD020	3/06/2021	0967_QC110_210603	Field Duplicate	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0166	0.0166	0.0166
On-site drainage channels	SD020	3/06/2021	0967_QC210_210603	Interlab Duplicate	800794	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.011	0.011	<0.05
On-site drainage channels	SD020	3/06/2021	0967_SD020_210603	Normal	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0332	0.0336	0.0353
On-site drainage channels	SD020	4/06/2021	0967_SD020_210604	Normal	EP2106322	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0206	0.0209	0.0219
On-site drainage channels	SD020	9/08/2021	0967_QC101_210809	Field Duplicate	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0215	0.0218	0.0218
On-site drainage channels	SD020	9/08/2021	0967_QC201_210809	Interlab Duplicate	267025	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.028		0.028
On-site drainage channels	SD020	9/08/2021	0967_SD020_210809	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0189	0.0192	0.0192
On-site drainage channels	SD020	24/08/2021	0967_QC101_210824	Field Duplicate	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0181	0.0184	0.0184
On-site drainage channels	SD020	24/08/2021	0967_QC201_210824	Interlab Duplicate	267713	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.012		0.012
On-site drainage channels	SD020	24/08/2021	0967_SD020_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0097	0.0097	0.0097
On-site drainage channels	SD020	20/09/2021	0967_SD020_210920	Normal	EP2111138	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0282	0.0286	0.0290
On-site drainage channels	SD020	21/04/2022	0967_SD020_220421	Normal	EP2204669	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0117	0.0124	0.0127
On-site drainage channels	SD020	21/06/2022	0967_SD020_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0764	0.0772	0.0786
On-site drainage channels	SD020	22/06/2022	0967_SD020_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0124	0.0124	0.0127
On-site drainage channels	SD020	23/06/2022	0967_SD020_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0182	0.0186	0.0191
On-site drainage channels	SD020	24/06/2022	0967_SD020_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.100	0.101	0.103
On-site drainage channels	SD020	25/06/2022	0967_SD020_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0795	0.0800	0.0812
On-site drainage channels	SD020	22/09/2022	0967_SD020_220922	Normal	EP2212310	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0099	0.0115	0.0123
On-site drainage channels	SD020	12/04/2023	0967_QC106_230412	Field Duplicate	EP2304598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0277	0.0284	0.0284
On-site drainage channels	SD020	12/04/2023	0967_QC206_230412	Interlab Duplicate	982488	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0085	<0.01	<0.05
On-site drainage channels	SD020	12/04/2023	0967_SD020_230412	Normal	EP2304598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
On-site drainage channels	SD020	9/06/2023	0967_SD020_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0690	0.0698	0.0702
On-site drainage channels	SD020	10/06/2023	0967_QC106_230610	Field Duplicate	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0142	0.0142	0.0142
On-site drainage channels	SD020	10/06/2023	0967_QC206_230610	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.02	0.02	<0.05
On-site drainage channels	SD020	10/06/2023	0967_SD020_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0238	0.0238	0.0238
On-site drainage channels	SD020	11/06/2023	0967_QC111_230611	Field Duplicate	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0115	0.0120	0.0120
On-site drainage channels	SD020	11/06/2023	0967_QC211_230611	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0092	<0.01	<0.05
On-site drainage channels	SD020	11/06/2023	0967_SD020_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0132	0.0136	0.0136
On-site drainage channels	SD020	12/06/2023	0967_SD020_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0062	0.0062	0.0062
On-site drainage channels	SD020	13/06/2023	0967_SD020_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0075	0.0078	0.0078
On-site drainage channels	SD020	11/09/2023	0967_SD020_230911	Normal	EP2312523	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ellen Brook	SD021	21/09/2016	RE_SS01	Normal	EP1608904								<0.0002	<0.0002	
Ellen Brook	SD021	24/08/2017	RE_SS01	Normal	EP1709164	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	8/03/2019	0967_SD021_190308	Normal	EP1902156	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD021	22/10/2019	0967_SD021_191022	Normal	EP1910842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	6/05/2020	0967_QC104_200506	Field Duplicate	EP2004585	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	6/05/2020	0967_QC204_200506	Interlab Duplicate	718239	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD021	6/05/2020	0967_SD021_200506	Normal	EP2004585	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	12/10/2020	0967_SD021_201012	Normal	EP2010997	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0006
Ellen Brook	SD021	21/04/2021	0967_SD021_210421	Normal	EP2104358	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	0.0005	0.0005
Ellen Brook	SD021	9/08/2021	0967_SD021_210809	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
Ellen Brook	SD021	25/08/2021	0967_SD021_210825	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
Ellen Brook	SD021	6/09/2021	0967_QC101_210906	Field Duplicate	EP2110381	<0.0002	<0.0005	<0.0002	0.0007	<0.0005	<0.0002	0.0006	0.0002	0.0002	0.0015
Ellen Brook	SD021	6/09/2021	0967_QC201_210906	Interlab Duplicate	822875	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD021	6/09/2021	0967_SD021_210906_0.10-	Normal	EP2110381	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD021	19/04/2022	0967_SD021_220419	Normal	EP2204503	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	19/09/2022	0967_SD021_220919	Normal	EP2212054	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD021	12/04/2023	0967_SD021_230412	Normal	EP2304603	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0003	0.0003	0.0003
Ellen Brook	SD021	14/09/2023	0967_SD021_230914	Normal	EP2312714	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD022	20/09/2016	RE_SS02	Normal	EP1608799								0.0195	0.0199	
Ellen Brook	SD022	20/09/2016	SS_FD03	Field Duplicate	EP1608799								0.0299	0.0304	
Ellen Brook	SD022	20/09/2016	SS_FS03	Interlab Duplicate	186091										
Ellen Brook	SD022	12/10/2017	RE_SS02	Normal	EP1711448										
Ellen Brook	SD022	6/03/2019	0967_SD022_190306	Normal	EP1902092	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0753	0.209	0.220
Ellen Brook	SD022	13/06/2019	0967_SD022_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
Ellen Brook	SD022	14/06/2019	0967_SD022_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0011	0.0011	0.0011
Ellen Brook	SD022	15/06/2019	0967_SD022_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
Ellen Brook	SD022	16/06/2019	0967_SD022_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0010	0.0010	0.0010
Ellen Brook	SD022	17/06/2019	0967_SD022_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0040	0.0091	0.0091
Ellen Brook	SD022	30/10/2019	0967_SD022_191030	Normal	EP1911181	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0159	0.0213	0.0220
Ellen Brook	SD022	13/05/2020	0967_SD022_0.00-0.10_200	Normal	EP2004875	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0046	0.0134	0.0137
Ellen Brook	SD022	30/06/2020	0967_SD022_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
Ellen Brook	SD022	1/07/2020	0967_SD022_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ellen Brook	SD022	2/07/2020	0967_SD022_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
Ellen Brook	SD022	3/07/2020	0967_SD022_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0108	0.0132	0.0135
Ellen Brook	SD022	4/07/2020	0967_QC102_200704	Field Duplicate	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0038	0.0052	0.0052

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ellen Brook	SD022	4/07/2020	0967_QC202_200704	Interlab Duplicate	730326	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.012	0.012	<0.05
Ellen Brook	SD022	4/07/2020	0967_SD022_200704	Normal	EP2006972	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0286	0.0320	0.0332
Ellen Brook	SD022	12/10/2020	0967_SD022_201012	Normal	EP2011012	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0653	0.0802	0.0846
Ellen Brook	SD022	19/04/2021	0967_SD022_210419	Normal	EP2104218	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0058	0.0071	0.0071
Ellen Brook	SD022	31/05/2021	0967_SD022_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0176	0.0239	0.0258
Ellen Brook	SD022	1/06/2021	0967_SD022_210601	Normal	EP2106133	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0359	0.0418	0.0448
Ellen Brook	SD022	2/06/2021	0967_SD022_210602	Normal	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0133	0.0145	0.0145
Ellen Brook	SD022	3/06/2021	0967_SD022_210603	Normal	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0156	0.0208	0.0208
Ellen Brook	SD022	4/06/2021	0967_SD022_210604	Normal	EP2106322	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0096	0.0113	0.0115
Ellen Brook	SD022	9/08/2021	0967_SD022_210809	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0083	0.0083	0.0083
Ellen Brook	SD022	24/08/2021	0967_SD022_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0294	0.0315	0.0324
Ellen Brook	SD022	6/09/2021	0967_SD022_210906_0.20-	Normal	EP2110381	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0174	0.0188	0.0188
Ellen Brook	SD022	20/04/2022	0967_SD022_220420	Normal	EP2204598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0050	0.0146	0.0146
Ellen Brook	SD022	21/06/2022	0967_SD022_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0082	0.0087	0.0087
Ellen Brook	SD022	22/06/2022	0967_SD022_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0086	0.0086	0.0086
Ellen Brook	SD022	23/06/2022	0967_SD022_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0066	0.0066	0.0066
Ellen Brook	SD022	24/06/2022	0967_SD022_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0066	0.0066	0.0066
Ellen Brook	SD022	25/06/2022	0967_SD022_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0245	0.0280	0.0296
Ellen Brook	SD022	22/09/2022	0967_SD022_220922	Normal	EP2212310	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0509	0.0546	0.0590
Ellen Brook	SD022	12/04/2023	0967_SD022_230412	Normal	EP2304598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0109	0.0208	0.0214
Ellen Brook	SD022	9/06/2023	0967_SD022_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0033	0.0033	0.0033
Ellen Brook	SD022	10/06/2023	0967_SD022_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0063	0.0063
Ellen Brook	SD022	11/06/2023	0967_SD022_230611	Normal	EP2307679	<0.0002	<0.0005	0.0002	<0.0005	<0.0005	0.0011	<0.0005	0.0305	0.0318	0.0339
Ellen Brook	SD022	12/06/2023	0967_SD022_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0078	0.0094	0.0094
Ellen Brook	SD022	13/06/2023	0967_SD022_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0028	0.0028	0.0028
Ellen Brook	SD022	19/09/2023	0967_SD022_230918	Normal	EP2312966	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0039	0.0044	0.0044
Ellen Brook	SD024	20/09/2016	RE_SS04	Normal	EP1608799								0.0031	0.0031	
Ellen Brook	SD024	11/10/2017	RE_SS04	Normal	EP1711448										
Ellen Brook	SD024	7/03/2019	0967_SD024_190307	Normal	EP1902154	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD024	19/11/2019	0967_SD024_191119	Normal	EP1912125	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD024	7/05/2020	0967_SD024_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
Ellen Brook	SD024	14/10/2020	0967_SD024_201014	Normal	EP2011184	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0026	0.0026
Ellen Brook	SD024	21/04/2021	0967_SD024_210421	Normal	EP2104358	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD024	7/09/2021	0967_SD024_210907	Normal	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0172	0.0172	0.0172
Ellen Brook	SD024	20/04/2022	0967_QC112_220420	Field Duplicate	EP2204595	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD024	20/04/2022	0967_QC212_220420	Interlab Duplicate	882820	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD024	20/04/2022	0967_SD024_220420	Normal	EP2204595	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD024	23/09/2022	0967_SD024_220923	Normal	EP2212364	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0025	0.0025
Ellen Brook	SD024	12/04/2023	0967_SD024_230412	Normal	EP2304611	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0002	0.0002	0.0002
Ellen Brook	SD024	15/09/2023	0967_SD024_230915	Normal	EP2312800	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
Ellen Brook	SD025	20/09/2016	RE_SS05	Normal	EP1608799								0.0084	0.0087	
Ellen Brook	SD025	7/03/2019	0967_SD025_190307	Normal	EP1902154	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0202	0.0209	0.0211
Ellen Brook	SD025	13/06/2019	0967_SD025_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
Ellen Brook	SD025	14/06/2019	0967_SD025_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
Ellen Brook	SD025	15/06/2019	0967_SD025_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0068	0.0068	0.0068
Ellen Brook	SD025	16/06/2019	0967_SD025_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
Ellen Brook	SD025	17/06/2019	0967_SD025_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0034	0.0034	0.0034
Ellen Brook	SD025	25/10/2019	0967_QC103_0.00-0.10_19	Field Duplicate	EP1911009	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
Ellen Brook	SD025	25/10/2019	0967_QC202_191025	Interlab Duplicate	685044	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD025	25/10/2019	0967_SD025_0.00-0.10_191	Normal	EP1911009	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0045	0.0045	0.0045
Ellen Brook	SD025	13/05/2020	0967_SD025_0.00-0.10_200	Normal	EP2004908	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0230	0.0230	0.0230
Ellen Brook	SD025	30/06/2020	0967_SD025_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
Ellen Brook	SD025	1/07/2020	0967_SD025_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0434	0.0440	0.0443
Ellen Brook	SD025	2/07/2020	0967_SD025_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0090	0.0090	0.0090
Ellen Brook	SD025	3/07/2020	0967_SD025_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0084	0.0084	0.0084
Ellen Brook	SD025	4/07/2020	0967_SD025_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0064	0.0064	0.0064
Ellen Brook	SD025	12/10/2020	0967_SD025_201012	Normal	EP2011012	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0638	0.0647	0.0656
Ellen Brook	SD025	19/04/2021	0967_SD025_210419	Normal	EP2104218	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0302	0.0305	0.0308
Ellen Brook	SD025	31/05/2021	0967_SD025_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0075	0.0075	0.0075
Ellen Brook	SD025	1/06/2021	0967_SD025_210601	Normal	EP2106133	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0620	0.0627	0.0629
Ellen Brook	SD025	2/06/2021	0967_SD025_210602	Normal	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0239	0.0241	0.0241
Ellen Brook	SD025	3/06/2021	0967_SD025_210603	Normal	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0428	0.0431	0.0434
Ellen Brook	SD025	4/06/2021	0967_SD025_210604	Normal	EP2106322	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0657	0.0664	0.0666
Ellen Brook	SD025	9/09/2021	0967_SD025_210909	Normal	EP2110596	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.161	0.162	0.164
Ellen Brook	SD025	20/04/2022	0967_SD025_220420	Normal	EP2204598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0727	0.0741	0.0750
Ellen Brook	SD025	21/06/2022	0967_QC103_220621	Field Duplicate	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.145	0.146	0.147
Ellen Brook	SD025	21/06/2022	0967_QC203_220621	Interlab Duplicate	901657	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.072	0.073	0.073
Ellen Brook	SD025	21/06/2022	0967_SD025_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.137	0.139	0.141
Ellen Brook	SD025	22/06/2022	0967_SD025_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.135	0.135	0.136
Ellen Brook	SD025	23/06/2022	0967_SD025_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0934	0.0940	0.0951
Ellen Brook	SD025	24/06/2022	0967_SD025_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0455	0.0457	0.0460
Ellen Brook	SD025	25/06/2022	0967_QC121_220625	Field Duplicate	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0604	0.0608	0.0612
Ellen Brook	SD025	25/06/2022	0967_QC221_220625	Interlab Duplicate	902463	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.021	0.025	0.025
Ellen Brook	SD025	25/06/2022	0967_SD025_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0640	0.0648	0.0651
Ellen Brook	SD025	20/09/2022	0967_QC114_220920	Field Duplicate	EP2212155	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.138	0.138	0.140
Ellen Brook	SD025	20/09/2022	0967_QC214_220920	Interlab Duplicate	926012	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.022	0.022	<0.05
Ellen Brook	SD025	20/09/2022	0967_SD025_220920	Normal	EP2212155	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0739	0.0744	0.0753
Ellen Brook	SD025	12/04/2023	0967_SD025_230412	Normal	EP2304598	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.288	0.293	0.298
Ellen Brook	SD025	9/06/2023	0967_SD025_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.100	0.101	0.102
Ellen Brook	SD025	10/06/2023	0967_SD025_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0580	0.0580	0.0583

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ellen Brook	SD025	11/06/2023	0967_SD025_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0319	0.0319	0.0319
Ellen Brook	SD025	12/06/2023	0967_QC115_230612	Field Duplicate	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0431	0.0434	0.0437
Ellen Brook	SD025	12/06/2023	0967_QC215_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.041	0.041	<0.05
Ellen Brook	SD025	12/06/2023	0967_SD025_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0719	0.0726	0.0734
Ellen Brook	SD025	13/06/2023	0967_QC122_230613	Field Duplicate	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0637	0.0648	0.0662
Ellen Brook	SD025	13/06/2023	0967_QC222_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.075	0.075	0.075
Ellen Brook	SD025	13/06/2023	0967_SD025_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.153	0.154	0.156
Ellen Brook	SD025	13/09/2023	0967_QC110_230913	Field Duplicate	EP2312635	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0343	0.0346	0.0348
Ellen Brook	SD025	13/09/2023	0967_QC210_230913	Interlab Duplicate	1026632	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0758	0.0758	0.0758
Ellen Brook	SD025	13/09/2023	0967_SD025_230913	Normal	EP2312635	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0999	0.101	0.102
Ellen Brook	SD026	20/09/2016	RE_SS06	Normal	EP1608799								0.0021	0.0021	
Ellen Brook	SD026	23/08/2017	RE_SS06	Normal	EP1709134	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD026	7/03/2019	0967_SD026_190307	Normal	EP1902154	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
Ellen Brook	SD026	7/11/2019	0967_SD026_191107	Normal	EP1911619	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD026	7/05/2020	0967_SD026_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0010	0.0010	0.0010
Ellen Brook	SD026	22/10/2020	0967_SD026_201022	Normal	EP2011561	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD026	21/04/2021	0967_SD026_210421	Normal	EP2104358	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD026	7/09/2021	0967_SD026_210907	Normal	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD026	20/04/2022	0967_SD026_220420	Normal	EP2204595	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD026	23/09/2022	0967_SD026_220923	Normal	EP2212364	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0136	0.0136	0.0136
Ellen Brook	SD026	12/04/2023	0967_SD026_230412	Normal	EP2304611	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
Ellen Brook	SD026	14/09/2023	0967_SD026_230914	Normal	EP2312714	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0005	0.0073	0.0078	0.0078
Ellen Brook	SD028	20/09/2016	RE_SS08	Normal	EP1608799								0.0021	0.0021	
Ellen Brook	SD028	11/03/2019	0967_SD028_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD028	13/06/2019	0967_SD028_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	0.0005	0.0005
Ellen Brook	SD028	14/06/2019	0967_SD028_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD028	15/06/2019	0967_SD028_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD028	16/06/2019	0967_SD028_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD028	17/06/2019	0967_SD028_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD028	30/10/2019	0967_SD028_0.00-0.10_191	Normal	EP1911186	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0147	0.0147	0.0147
Ellen Brook	SD028	8/05/2020	0967_SD028_200508	Normal	EP2004706	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0050	0.0050	0.0050
Ellen Brook	SD028	30/06/2020	0967_SD028_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0114	0.0117	0.0117
Ellen Brook	SD028	1/07/2020	0967_SD028_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0063	0.0063	0.0063
Ellen Brook	SD028	2/07/2020	0967_SD028_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0034	0.0034	0.0034
Ellen Brook	SD028	3/07/2020	0967_SD028_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0108	0.0108	0.0108
Ellen Brook	SD028	4/07/2020	0967_SD028_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0137	0.0146	0.0146
Ellen Brook	SD028	12/10/2020	0967_SD028_201012	Normal	EP2011012	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0221	0.0221	0.0221
Ellen Brook	SD028	20/04/2021	0967_SD028_210420	Normal	EP2104292	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0126	0.0126	0.0129
Ellen Brook	SD028	31/05/2021	0967_SD028_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0200	0.0202	0.0204
Ellen Brook	SD028	9/09/2021	0967_SD028_210909	Normal	EP2110597	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0150	0.0150	0.0150
Ellen Brook	SD028	21/04/2022	0967_SD028_220421	Normal	EP2204669	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0023	0.0023	0.0023
Ellen Brook	SD028	21/06/2022	0967_SD028_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0165	0.0167	0.0167
Ellen Brook	SD028	22/06/2022	0967_QC108_220622	Field Duplicate	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0207	0.0207	0.0207
Ellen Brook	SD028	22/06/2022	0967_QC208_220621	Interlab Duplicate	901660	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.0064	0.0064	0.0064
Ellen Brook	SD028	22/06/2022	0967_SD028_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0154	0.0154	0.0154
Ellen Brook	SD028	23/06/2022	0967_SD028_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0095	0.0095	0.0095
Ellen Brook	SD028	24/06/2022	0967_SD028_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0110	0.0110	0.0110
Ellen Brook	SD028	25/06/2022	0967_SD028_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0145	0.0145	0.0145
Ellen Brook	SD028	20/09/2022	0967_SD028_220920	Normal	EP2212155	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0108	0.0108	0.0108
Ellen Brook	SD028	12/04/2023	0967_SD028_230412	Normal	EP2304602	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0221	0.0221	0.0225
Ellen Brook	SD028	9/06/2023	0967_SD028_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0064
Ellen Brook	SD028	10/06/2023	0967_SD028_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0082	0.0082	0.0082
Ellen Brook	SD028	11/06/2023	0967_SD028_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
Ellen Brook	SD028	12/06/2023	0967_SD028_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0025	0.0025
Ellen Brook	SD028	13/06/2023	0967_SD028_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
Ellen Brook	SD028	19/09/2023	0967_SD028_230918	Normal	EP2312966	<0.0022	<0.0056	<0.0022	<0.0056	<0.0056	<0.0022	<0.0056	0.0095	0.0095	0.0095
Ellen Brook	SD029	20/09/2016	RE_SS09	Normal	EP1608799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0027	0.0027	0.0027
Ellen Brook	SD029	23/08/2017	RE_SS09	Normal	EP1709134	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD029	11/03/2019	0967_SD029_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD029	30/10/2019	0967_SD029_0.00-0.10_191	Normal	EP1911186	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0320	0.0420	0.0437
Ellen Brook	SD029	8/05/2020	0967_SD029_200508	Normal	EP2004706	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0051	0.0051	0.0051
Ellen Brook	SD029	12/10/2020	0967_SD029_201012	Normal	EP2011012	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0246	0.0246	0.0246
Ellen Brook	SD029	20/04/2021	0967_QC108_210420	Field Duplicate	EP2104292	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0099	0.0101	0.0101
Ellen Brook	SD029	20/04/2021	0967_QC208_210420	Interlab Duplicate	789529	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.008	<0.01	<0.05
Ellen Brook	SD029	20/04/2021	0967_SD029_210420	Normal	EP2104292	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0109	0.0109	0.0109
Ellen Brook	SD029	9/09/2021	0967_SD029_210909	Normal	EP2110597	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0143	0.0143	0.0143
Ellen Brook	SD029	21/04/2022	0967_SD029_220421	Normal	EP2204669	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0457	0.0474	0.0479
Ellen Brook	SD029	20/09/2022	0967_SD029_220920	Normal	EP2212155	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0084	0.0084	0.0084
Ellen Brook	SD029	12/04/2023	0967_SD029_230412	Normal	EP2304598	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0058	0.0073	0.0081
Ellen Brook	SD029	19/09/2023	0967_SD029_230918	Normal	EP2312966	<0.0022	<0.0056	<0.0022	<0.0056	<0.0056	<0.0022	<0.0056	0.0046	0.0046	0.0046
Ki-it Monger Brook	SD032	21/09/2016	RK_SS12	Normal	EP1608904								0.0074	0.0074	
Ki-it Monger Brook	SD032	22/08/2017	RK_SS12	Normal	EP1709097	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ki-it Monger Brook	SD032	13/06/2019	0967_SD032_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0077	0.0077	0.0077
Ki-it Monger Brook	SD032	14/06/2019	0967_SD032_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0043
Ki-it Monger Brook	SD032	15/06/2019	0967_QC121_190615	Field Duplicate	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0066	0.0066	0.0066
Ki-it Monger Brook	SD032	15/06/2019	0967_QC221_190615	Interlab Duplicate	228322	<0.002	<0.002	<0.0004	<0.002	<0.002	<0.002	<0.01	0.012		0.012
Ki-it Monger Brook	SD032	15/06/2019	0967_SD032_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0086	0.0086	0.0086
Ki-it Monger Brook	SD032	16/06/2019	0967_SD032_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0045
Ki-it Monger Brook	SD032	17/06/2019	0967_SD032_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0040	0.0040	0.0040
Ki-it Monger Brook	SD032	30/10/2019	0967_SD032_191030	Normal	EP1911184	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0064

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ki-it Monger Brook	SD032	6/05/2020	0967_SD032_200506	Normal	EP2004585	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0261	0.0270	0.0273
Ki-it Monger Brook	SD032	30/06/2020	0967_SD032_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0144	0.0147	0.0147
Ki-it Monger Brook	SD032	1/07/2020	0967_SD032_200701	Normal	EP2006823	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ki-it Monger Brook	SD032	2/07/2020	0967_SD032_200702	Normal	EP2006907	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
Ki-it Monger Brook	SD032	3/07/2020	0967_SD032_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0038	0.0038	0.0038
Ki-it Monger Brook	SD032	4/07/2020	0967_SD032_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0046	0.0046	0.0046
Ki-it Monger Brook	SD032	22/10/2020	0967_SD032_201022	Normal	EP2011547	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ki-it Monger Brook	SD032	19/04/2021	0967_SD032_210419	Normal	EP2104218	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0054	0.0054
Ki-it Monger Brook	SD032	31/05/2021	0967_SD032_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0060	0.0060	0.0060
Ki-it Monger Brook	SD032	1/06/2021	0967_SD032_210601	Normal	EP2106133	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.102	0.103	0.105
Ki-it Monger Brook	SD032	2/06/2021	0967_SD032_210602	Normal	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0418	0.0429	0.0435
Ki-it Monger Brook	SD032	3/06/2021	0967_SD032_210603	Normal	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0507	0.0524	0.0529
Ki-it Monger Brook	SD032	4/06/2021	0967_SD032_210604	Normal	EP2106322	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0613	0.0625	0.0635
Ki-it Monger Brook	SD032	7/09/2021	0967_SD032_210907	Normal	EP2110447	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0058	0.0058	0.0058
Ki-it Monger Brook	SD032	19/04/2022	0967_SD032_220419	Normal	EP2204500	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0066	0.0066	0.0066
Ki-it Monger Brook	SD032	21/06/2022	0967_SD032_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0098	0.0098	0.0098
Ki-it Monger Brook	SD032	22/06/2022	0967_SD032_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0101	0.0103	0.0103
Ki-it Monger Brook	SD032	23/06/2022	0967_QC111_220623	Field Duplicate	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0105	0.0105	0.0105
Ki-it Monger Brook	SD032	23/06/2022	0967_QC211_220623	Interlab Duplicate	902466	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.0049	0.0062	0.0062
Ki-it Monger Brook	SD032	23/06/2022	0967_SD032_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0118	0.0120	0.0120
Ki-it Monger Brook	SD032	24/06/2022	0967_SD032_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0079	0.0079	0.0079
Ki-it Monger Brook	SD032	25/06/2022	0967_QC119_220625	Field Duplicate	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0048	0.0048	0.0048
Ki-it Monger Brook	SD032	25/06/2022	0967_QC219_220625	Interlab Duplicate	902463	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.0059	0.0083	0.0083
Ki-it Monger Brook	SD032	25/06/2022	0967_SD032_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0070	0.0070	0.0070
Ki-it Monger Brook	SD032	19/09/2022	0967_QC105_220919	Field Duplicate	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0053	0.0053	0.0053
Ki-it Monger Brook	SD032	19/09/2022	0967_QC205_220919	Interlab Duplicate	926012	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ki-it Monger Brook	SD032	19/09/2022	0967_SD032_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0101	0.0101	0.0101
Ki-it Monger Brook	SD032	12/04/2023	0967_SD032_230412	Normal	EP2304602	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0098	0.0098	0.0098
Ki-it Monger Brook	SD032	9/06/2023	0967_QC102_230609	Field Duplicate	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0076	0.0076	0.0076
Ki-it Monger Brook	SD032	9/06/2023	0967_QC202_230609	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0069	<0.01	<0.05
Ki-it Monger Brook	SD032	9/06/2023	0967_SD032_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0098	0.0103	0.0103
Ki-it Monger Brook	SD032	10/06/2023	0967_SD032_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0062	0.0062	0.0062
Ki-it Monger Brook	SD032	11/06/2023	0967_SD032_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0218	0.0218	0.0218
Ki-it Monger Brook	SD032	12/06/2023	0967_QC114_230612	Field Duplicate	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0238	0.0238	0.0238
Ki-it Monger Brook	SD032	12/06/2023	0967_QC214_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.031	0.031	<0.05
Ki-it Monger Brook	SD032	12/06/2023	0967_SD032_230612	Normal	EP2307716	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0319	0.0319	0.0321
Ki-it Monger Brook	SD032	13/06/2023	0967_SD032_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0506	0.0518	0.0527
Ki-it Monger Brook	SD032	11/09/2023	0967_SD032_230911	Normal	EP2312523	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0038	0.0038	0.0038
Ki-it Monger Brook	SD034	21/09/2016	RK_SS14	Normal	EP1608904	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0792	0.0804	0.0825
Ki-it Monger Brook	SD034	5/03/2019	0967_SD034_190305	Normal	EP1902013	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0057	0.0060	0.0060
Ki-it Monger Brook	SD034	13/06/2019	0967_SD034_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0083	0.0083	0.0083
Ki-it Monger Brook	SD034	14/06/2019	0967_SD034_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
Ki-it Monger Brook	SD034	15/06/2019	0967_SD034_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
Ki-it Monger Brook	SD034	16/06/2019	0967_SD034_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0056	0.0056	0.0056
Ki-it Monger Brook	SD034	17/06/2019	0967_QC128_190617	Field Duplicate	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0091	0.0091	0.0091
Ki-it Monger Brook	SD034	17/06/2019	0967_QC228_190617	Interlab Duplicate	228323	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.001	<0.005	0.0080		0.0080
Ki-it Monger Brook	SD034	17/06/2019	0967_SD034_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0051	0.0051	0.0051
Ki-it Monger Brook	SD034	30/10/2019	0967_SD034_191030	Normal	EP1911184	0.0027	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0689	0.0710	0.0798
Ki-it Monger Brook	SD034	7/05/2020	0967_SD034_200507	Normal	EP2004665	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0298	0.0318	0.0321
Ki-it Monger Brook	SD034	30/06/2020	0967_SD034_200630	Normal	EP2006824	0.0007	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0879	0.0936	0.0983
Ki-it Monger Brook	SD034	1/07/2020	0967_SD034_200701	Normal	EP2006823	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.272	0.275	0.280
Ki-it Monger Brook	SD034	2/07/2020	0967_SD034_200702	Normal	EP2006907	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0377	0.0391	0.0413
Ki-it Monger Brook	SD034	3/07/2020	0967_SD034_200703	Normal	EP2006943	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0069
Ki-it Monger Brook	SD034	4/07/2020	0967_SD034_200704	Normal	EP2006972	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0166	0.0166	0.0166
Ki-it Monger Brook	SD034	22/10/2020	0967_SD034_201022	Normal	EP2011547	0.0072	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.180	0.183	0.196
Ki-it Monger Brook	SD034	19/04/2021	0967_QC101_210419	Field Duplicate	EP2104218	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0369	0.0375	0.0381
Ki-it Monger Brook	SD034	19/04/2021	0967_QC201_210419	Interlab Duplicate	790153	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.054	0.054	0.054
Ki-it Monger Brook	SD034	19/04/2021	0967_SD034_210419	Normal	EP2104218	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0288	0.0291	0.0301
Ki-it Monger Brook	SD034	31/05/2021	0967_QC104_210531	Field Duplicate	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0100	0.0100	0.0114
Ki-it Monger Brook	SD034	31/05/2021	0967_SD034_210531	Normal	EP2106117	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0052
Ki-it Monger Brook	SD034	1/06/2021	0967_SD034_210601	Normal	EP2106133	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0228	0.0228	0.0248
Ki-it Monger Brook	SD034	2/06/2021	0967_SD034_210602	Normal	EP2106196	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0044	0.0044	0.0072
Ki-it Monger Brook	SD034	3/06/2021	0967_SD034_210603	Normal	EP2106263	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0039	0.0039	0.0058
Ki-it Monger Brook	SD034	4/06/2021	0967_SD034_210604	Normal	EP2106322	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0092
Ki-it Monger Brook	SD034	7/09/2021	0967_SD034_210907	Normal	EP2110447	0.0011	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.293	0.295	0.301
Ki-it Monger Brook	SD034	19/04/2022	0967_QC105_220419	Field Duplicate	EP2204500	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0052	0.0052	0.0052
Ki-it Monger Brook	SD034	19/04/2022	0967_QC205_220419	Interlab Duplicate	882564	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0081	<0.01	<0.05
Ki-it Monger Brook	SD034	19/04/2022	0967_SD034_220419	Normal	EP2204500	0.0006	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0211	0.0211	0.0217
Ki-it Monger Brook	SD034	21/06/2022	0967_SD034_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0260	0.0260	0.0260
Ki-it Monger Brook	SD034	22/06/2022	0967_SD034_220622	Normal	EP2207735	0.0013	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.246	0.248	0.254
Ki-it Monger Brook	SD034	23/06/2022	0967_SD034_220623	Normal	EP2207825	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.224	0.226	0.231
Ki-it Monger Brook	SD034	24/06/2022	0967_QC116_220624	Field Duplicate	EP2207892	0.0004	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.178	0.180	0.183
Ki-it Monger Brook	SD034	24/06/2022	0967_QC216_220624	Interlab Duplicate	902459	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.080	0.086	0.087
Ki-it Monger Brook	SD034	24/06/2022	0967_SD034_220624	Normal	EP2207892	0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.337	0.342	0.346
Ki-it Monger Brook	SD034	25/06/2022	0967_SD034_220625	Normal	EP2207910	0.0009	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.362	0.365	0.371
Ki-it Monger Brook	SD034	19/09/2022	0967_SD034_220919	Normal	EP2212079	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.102	0.103	0.104
Ki-it Monger Brook	SD034	12/04/2023	0967_SD034_230412	Normal	EP2304598	0.0021	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0846	0.0860	0.123
Ki-it Monger Brook	SD034	9/06/2023	0967_SD034_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0244	0.0247	0.0247
Ki-it Monger Brook	SD034	10/06/2023	0967_SD034_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0069	0.0069	0.0075
Ki-it Monger Brook	SD034	11/06/2023	0967_SD034_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0351	0.0355	0.0367

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ki-it Monger Brook	SD034	12/06/2023	0967_SD034_230612	Normal	EP2307716	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0356	0.0358	0.0372
Ki-it Monger Brook	SD034	13/06/2023	0967_SD034_230613	Normal	EP2307799	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0044	0.0044	0.0056
Ki-it Monger Brook	SD034	11/09/2023	0967_SD034_230911	Normal	EP2312523	<0.0003	<0.0007	<0.0003	<0.0007	<0.0007	<0.0003	<0.0007	0.0428	0.0430	0.0430
Ki-it Monger Brook	SD035	21/09/2016	RK_SS15	Normal	EP1608904								0.0061	0.0061	
Ki-it Monger Brook	SD035	22/08/2017	RK_SS15	Normal	EP1709097	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0118	0.0118	0.0121
Ki-it Monger Brook	SD035	5/03/2019	0967_SD035_190305	Normal	EP1902013	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0077	0.0080	0.0080
Ki-it Monger Brook	SD035	30/10/2019	0967_SD035_191030	Normal	EP1911184	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0057	0.0057	0.0057
Ki-it Monger Brook	SD035	6/05/2020	0967_SD035_200506	Normal	EP2004585	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0487	0.0520	0.0527
Ki-it Monger Brook	SD035	22/10/2020	0967_SD035_201022	Normal	EP2011547	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0054	0.0054
Ki-it Monger Brook	SD035	19/04/2021	0967_SD035_210419	Normal	EP2104218	0.0008	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0121	0.0121	0.0129
Ki-it Monger Brook	SD035	7/09/2021	0967_SD035_210907	Normal	EP2110447	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0090	0.0090	0.0090
Ki-it Monger Brook	SD035	19/04/2022	0967_SD035_220419	Normal	EP2204500	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ki-it Monger Brook	SD035	19/09/2022	0967_SD035_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0118	0.0118	0.0118
Ki-it Monger Brook	SD035	12/04/2023	0967_SD035_230412	Normal	EP2304598	0.0036	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.159	0.163	0.196
Ki-it Monger Brook	SD035	11/09/2023	0967_SD035_230911	Normal	EP2312523	<0.0003	<0.0007	<0.0003	<0.0005	<0.0007	<0.0003	<0.0007	0.0072	0.0078	0.0078
Ki-it Monger Brook	SD036	27/10/2016	RK_SS16	Normal	EP1610241								0.0029	0.0029	
Ki-it Monger Brook	SD036	27/10/2016	RK_SS16	Normal	EP1611527								0.0029	0.0029	
Ki-it Monger Brook	SD036	4/09/2017	RK_SS16	Normal	EP1709698	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
Ki-it Monger Brook	SD036	4/09/2017	RK_SS16	Normal	EP1710899	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
Ki-it Monger Brook	SD036	8/03/2019	0967_SD036_190308	Normal	EP1902156	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0051	0.0053	0.0053
Ki-it Monger Brook	SD036	13/06/2019	0967_QC114_190613	Field Duplicate	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0025	0.0025
Ki-it Monger Brook	SD036	13/06/2019	0967_QC214_190613	Interlab Duplicate	228248	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.0027		0.0027
Ki-it Monger Brook	SD036	13/06/2019	0967_SD036_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0033	0.0033	0.0033
Ki-it Monger Brook	SD036	14/06/2019	0967_SD036_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0072	0.0072	0.0072
Ki-it Monger Brook	SD036	15/06/2019	0967_SD036_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
Ki-it Monger Brook	SD036	16/06/2019	0967_SD036_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0025	0.0025	0.0025
Ki-it Monger Brook	SD036	17/06/2019	0967_SD036_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0035	0.0035	0.0035
Ki-it Monger Brook	SD036	7/11/2019	0967_SD036_191107	Normal	EP1911619	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0345	0.0351	0.0351
Ki-it Monger Brook	SD036	11/05/2020	0967_SD036_0.00-0.10_200	Normal	EP2004791	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0061	0.0061
Ki-it Monger Brook	SD036	30/06/2020	0967_SD036_200630	Normal	EP2006827	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0061	0.0061
Ki-it Monger Brook	SD036	1/07/2020	0967_SD036_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0093	0.0095	0.0095
Ki-it Monger Brook	SD036	2/07/2020	0967_SD036_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0060	0.0060	0.0060
Ki-it Monger Brook	SD036	3/07/2020	0967_SD036_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0188	0.0191	0.0194
Ki-it Monger Brook	SD036	4/07/2020	0967_SD036_200704	Normal	EP2006965	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	0.0371	0.0371	0.0371
Ki-it Monger Brook	SD036	12/10/2020	0967_SD036_201012	Normal	EP2010997	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
Ki-it Monger Brook	SD036	19/04/2021	0967_SD036_210419	Normal	EP2104210	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0105	0.0105	0.0105
Ki-it Monger Brook	SD036	31/05/2021	0967_SD036_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0061	0.0061	0.0061
Ki-it Monger Brook	SD036	2/06/2021	0967_SD036_210602	Normal	EP2106206	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0240	0.0242	0.0250
Ki-it Monger Brook	SD036	3/06/2021	0967_SD036_210603	Normal	EP2106283	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0285	0.0285	0.0295
Ki-it Monger Brook	SD036	4/06/2021	0967_SD036_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0211	0.0211	0.0213
Ki-it Monger Brook	SD036	10/08/2021	0967_SD036_210810	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0119	0.0121	0.0121
Ki-it Monger Brook	SD036	24/08/2021	0967_SD036_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014	0.0014
Ki-it Monger Brook	SD036	9/09/2021	0967_SD036_210909	Normal	EP2110597	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
Ki-it Monger Brook	SD036	20/04/2022	0967_SD036_220420	Normal	EP2204595	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
Ki-it Monger Brook	SD036	21/06/2022	0967_SD036_220621	Normal	EP2207629	0.0003	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0655	0.0664	0.0667
Ki-it Monger Brook	SD036	22/06/2022	0967_SD036_220622	Normal	EP2207735	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0483	0.0486	0.0498
Ki-it Monger Brook	SD036	23/06/2022	0967_SD036_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0405	0.0408	0.0414
Ki-it Monger Brook	SD036	24/06/2022	0967_SD036_220624	Normal	EP2207894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0258	0.0258	0.0264
Ki-it Monger Brook	SD036	25/06/2022	0967_SD036_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0522	0.0530	0.0532
Ki-it Monger Brook	SD036	20/09/2022	0967_SD036_220920	Normal	EP2212157	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0177	0.0177	0.0177
Ki-it Monger Brook	SD036	13/04/2023	0967_SD036_230413	Normal	EP2304670	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0108	0.0108	0.0108
Ki-it Monger Brook	SD036	9/06/2023	0967_SD036_230609	Normal	EP2307642	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0821	0.0832	0.0839
Ki-it Monger Brook	SD036	10/06/2023	0967_SD036_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0064	0.0064	0.0064
Ki-it Monger Brook	SD036	11/06/2023	0967_SD036_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0065	0.0065	0.0065
Ki-it Monger Brook	SD036	12/06/2023	0967_QC117_230612	Field Duplicate	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0055	0.0055	0.0055
Ki-it Monger Brook	SD036	12/06/2023	0967_QC217_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.022	0.022	<0.05
Ki-it Monger Brook	SD036	12/06/2023	0967_SD036_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0086	0.0086	0.0088
Ki-it Monger Brook	SD036	13/06/2023	0967_QC126_230613	Field Duplicate	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0075	0.0075	0.0075
Ki-it Monger Brook	SD036	13/06/2023	0967_QC226_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.019	0.019	<0.05
Ki-it Monger Brook	SD036	13/06/2023	0967_SD036_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0026	0.0026
Ki-it Monger Brook	SD036	18/09/2023	0967_SD036_230918	Normal	EP2312966	<0.0002	<0.0055	<0.0022	<0.0006	<0.0006	<0.0022	<0.0006	0.0198	0.0198	0.0198
Ki-it Monger Brook	SD044	27/10/2016	RK_SS24	Normal	EP1610241								0.0138	0.0138	
Ki-it Monger Brook	SD044	22/08/2017	RK_SS24	Normal	EP1709097	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
Ki-it Monger Brook	SD044	10/10/2017	RK_SS24	Normal	EP1711281										
Ki-it Monger Brook	SD044	11/03/2019	0967_QC110_190311	Field Duplicate	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0186	0.0190	0.0192
Ki-it Monger Brook	SD044	11/03/2019	0967_QC210_190311	Interlab Duplicate	223560	<0.005	<0.005	<0.001	<0.001	<0.005	<0.001	<0.005	0.02		0.024
Ki-it Monger Brook	SD044	11/03/2019	0967_SD044_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0203	0.0207	0.0209
Ki-it Monger Brook	SD044	22/10/2019	0967_SD044_191022	Normal	EP1910842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0245	0.0277	0.0277
Ki-it Monger Brook	SD044	7/05/2020	0967_SD044_200507	Normal	EP2004665	0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0173	0.0182	0.0184
Ki-it Monger Brook	SD044	12/10/2020	0967_QC106_201012	Field Duplicate	EP2011009	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0081	0.0081	0.0081
Ki-it Monger Brook	SD044	12/10/2020	0967_QC206_201012	Interlab Duplicate	750345	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ki-it Monger Brook	SD044	12/10/2020	0967_SD044_201012	Normal	EP2011009	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0023	0.0023	0.0023
Ki-it Monger Brook	SD044	19/04/2021	0967_SD044_210419	Normal	EP2104218	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0219	0.0229	0.0229
Ki-it Monger Brook	SD044	7/09/2021	0967_SD044_210907	Normal	EP2110447	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0072	0.0072	0.0072
Ki-it Monger Brook	SD044	8/10/2021	0967_QC103_211008	Field Duplicate	EP2112051										
Ki-it Monger Brook	SD044	8/10/2021	0967_QC203_211008	Interlab Duplicate	832505										
Ki-it Monger Brook	SD044	8/10/2021	0967_ SD044_211008	Normal	EP2112051										
Ki-it Monger Brook	SD044	19/04/2022	0967_SD044_220419	Normal	EP2204500	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0035	0.0035	0.0035
Ki-it Monger Brook	SD044	19/09/2022	0967_SD044_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0079	0.0079	0.0081
Ki-it Monger Brook	SD044	20/10/2022	0967_SD044_221020	Normal	EP2213836										

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ki-it Monger Brook	SD044	12/04/2023	0967_SD044_230412	Normal	EP2304598	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0078	0.0080	0.0080
Ki-it Monger Brook	SD044	11/09/2023	0967_SD044_230911	Normal	EP2312523	<0.0002	<0.0007	<0.0003	<0.0005	<0.0005	<0.0003	<0.0005	0.0090	0.0092	0.0092
Ki-it Monger Brook	SD044	6/10/2023	0967_SD044_231006	Normal	EP2313944										
Ki-it Monger Brook	SD046	27/10/2016	RK_SS26	Normal	EP1610241								<0.0002	0.0002	
Ki-it Monger Brook	SD046	6/03/2019	0967_SD046_190306	Normal	EP1902092	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
Ki-it Monger Brook	SD046	22/10/2019	0967_QC102_191022	Field Duplicate	EP1910842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0036	0.0036	0.0036
Ki-it Monger Brook	SD046	22/10/2019	0967_QC202_191022	Interlab Duplicate	684560	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.0067	<0.01	<0.05
Ki-it Monger Brook	SD046	22/10/2019	0967_SD046_191022	Normal	EP1910842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
Ki-it Monger Brook	SD046	6/05/2020	0967_SD046_200506	Normal	EP2004585	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ki-it Monger Brook	SD046	12/10/2020	0967_SD046_201012	Normal	EP2011009	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0022	0.0055	0.0055
Ki-it Monger Brook	SD046	20/04/2021	0967_SD046_210420	Normal	EP2104292	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0028	0.0028	0.0028
Ki-it Monger Brook	SD046	9/08/2021	0967_SD046_210809	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
Ki-it Monger Brook	SD046	24/08/2021	0967_SD046_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0045	0.0045	0.0049
Ki-it Monger Brook	SD046	8/09/2021	0967_SD046_210908	Normal	EP2110526	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
Ki-it Monger Brook	SD046	19/04/2022	0967_SD046_220419	Normal	EP2204500	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
Ki-it Monger Brook	SD046	19/09/2022	0967_SD046_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0034	0.0034	0.0034
Ki-it Monger Brook	SD046	12/04/2023	0967_SD046_230412	Normal	EP2304598	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0106	0.0108	0.0108
Ki-it Monger Brook	SD046	13/09/2023	0967_SD046_230913	Normal	EP2312635	<0.0002	<0.0006	<0.0009	<0.0006	<0.0006	<0.0009	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD049	28/04/2017	RE_SS29	Normal	EP1704272	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014	0.0014
Ellen Brook	SD049	24/08/2017	RE_SS29	Normal	EP1709164	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD049	11/03/2019	0967_SD049_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0010	0.0010	0.0010
Ellen Brook	SD049	13/06/2019	0967_SD049_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0009
Ellen Brook	SD049	14/06/2019	0967_QC119_190614	Field Duplicate	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD049	14/06/2019	0967_QC219_190614	Interlab Duplicate	228247	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	0.0003		0.0003
Ellen Brook	SD049	14/06/2019	0967_SD049_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD049	15/06/2019	0967_SD049_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD049	16/06/2019	0967_QC127_190616	Field Duplicate	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD049	16/06/2019	0967_QC227_190616	Interlab Duplicate	228321	<0.001	<0.001	<0.0002	<0.001	<0.005	<0.002	<0.005	0.0003		0.0003
Ellen Brook	SD049	16/06/2019	0967_SD049_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD049	17/06/2019	0967_SD049_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD049	4/12/2019	0967_SD049_191204	Normal	EP1912894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD049	6/05/2020	0967_SD049_200506	Normal	EP2004587	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
Ellen Brook	SD049	30/06/2020	0967_QC101_200630	Field Duplicate	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0056	0.0056	0.0056
Ellen Brook	SD049	30/06/2020	0967_QC201_200630	Interlab Duplicate	729574	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.011	0.011	<0.05
Ellen Brook	SD049	30/06/2020	0967_SD049_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
Ellen Brook	SD049	1/07/2020	0967_SD049_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0024	0.0024	0.0024
Ellen Brook	SD049	2/07/2020	0967_SD049_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
Ellen Brook	SD049	3/07/2020	0967_SD049_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0021	0.0021	0.0021
Ellen Brook	SD049	4/07/2020	0967_SD049_200704	Normal	EP2006965	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	22/10/2020	0967_SD049_201022	Normal	EP2011547	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0023	0.0023	0.0023
Ellen Brook	SD049	19/04/2021	0967_SD049_210419	Normal	EP2104210	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
Ellen Brook	SD049	31/05/2021	0967_SD049_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD049	1/06/2021	0967_SD049_210601	Normal	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0033	0.0033	0.0036
Ellen Brook	SD049	2/06/2021	0967_QC108_210602	Field Duplicate	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
Ellen Brook	SD049	2/06/2021	0967_QC208_210602	Interlab Duplicate	800405	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD049	2/06/2021	0967_SD049_210602	Normal	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0043
Ellen Brook	SD049	3/06/2021	0967_QC111_210603	Field Duplicate	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	3/06/2021	0967_QC211_210603	Interlab Duplicate	800794	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD049	3/06/2021	0967_SD049_210603	Normal	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005
Ellen Brook	SD049	4/06/2021	0967_QC116_210604	Field Duplicate	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD049	4/06/2021	0967_QC215_210604	Interlab Duplicate	801498	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD049	4/06/2021	0967_SD049_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
Ellen Brook	SD049	8/09/2021	0967_SD049_210908	Normal	EP2110528	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0021	0.0021	0.0021
Ellen Brook	SD049	21/04/2022	0967_SD049_220421	Normal	EP2204672	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
Ellen Brook	SD049	21/06/2022	0967_SD049_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
Ellen Brook	SD049	22/06/2022	0967_SD049_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
Ellen Brook	SD049	23/06/2022	0967_QC113_220623	Field Duplicate	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD049	23/06/2022	0967_QC213_220623	Interlab Duplicate	902466	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.093	0.10	0.10
Ellen Brook	SD049	23/06/2022	0967_SD049_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	SD049	24/06/2022	0967_SD049_220624	Normal	EP2207894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
Ellen Brook	SD049	25/06/2022	0967_SD049_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD049	21/09/2022	0967_SD049_220921	Normal	EP2212259	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0542	0.0542	0.0547
Ellen Brook	SD049	11/04/2023	0967_QC102_230411	Field Duplicate	EP2304519	<0.0002	<0.0006	<0.0002	<0.0006	<0.0006	<0.0002	<0.0006	0.0115	0.0115	0.0115
Ellen Brook	SD049	11/04/2023	0967_QC202_230411	Interlab Duplicate	982488	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	0.011	0.011	<0.05
Ellen Brook	SD049	11/04/2023	0967_SD049_230411	Normal	EP2304519	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0159	0.0161	0.0163
Ellen Brook	SD049	9/06/2023	0967_SD049_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0026	0.0026	0.0026
Ellen Brook	SD049	10/06/2023	0967_SD049_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0027	0.0027	0.0027
Ellen Brook	SD049	11/06/2023	0967_SD049_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0076	0.0076	0.0076
Ellen Brook	SD049	12/06/2023	0967_SD049_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0044	0.0044	0.0044
Ellen Brook	SD049	13/06/2023	0967_QC123_230613	Field Duplicate	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0023	0.0023	0.0023
Ellen Brook	SD049	13/06/2023	0967_QC223_230613	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	SD049	13/06/2023	0967_SD049_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0032	0.0032	0.0032
Ellen Brook	SD049	19/09/2023	0967_SD049_230918	Normal	EP2312966	<0.0002	<0.0006	<0.0024	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	SD050	28/04/2017	RE_SS30	Normal	EP1704272								0.0002	0.0002	
Ellen Brook	SD050	24/08/2017	RE_SS30	Normal	EP1709164	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD050	8/03/2019	0967_QC109_190308	Field Duplicate	EP1902156	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD050	8/03/2019	0967_SD050_190308	Normal	EP1902156	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	SD050	8/03/2019	QC209_190308	Interlab Duplicate	223469	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001		<0.0001
Ellen Brook	SD050	23/10/2019	0967_SD050_0.00-0.10_191	Normal	EP1910898	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	SD050	6/05/2020	0967_SD050_0.00-0.10_200	Normal	EP2004587	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
Ellen Brook	**SD050**	**22/10/2020**	**0967_SD050_201022**	**Normal**	**EP2011547**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
Ellen Brook	**SD050**	**21/04/2021**	**0967_QC115_210421**	**Field Duplicate**	**EP2104355**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	**SD050**	**21/04/2021**	**0967_QC215_210421**	**Interlab Duplicate**	**789955**	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	**SD050**	**21/04/2021**	**0967_SD050_210421**	**Normal**	**EP2104355**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Ellen Brook	**SD050**	**8/09/2021**	**0967_SD050_210908**	**Normal**	**EP2110528**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Ellen Brook	**SD050**	**21/04/2022**	**0967_SD050_220421**	**Normal**	**EP2204672**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
Ellen Brook	**SD050**	**21/09/2022**	**0967_SD050_220921**	**Normal**	**EP2212259**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0113	0.0113
Ellen Brook	**SD050**	**11/04/2023**	**0967_QC103_230411**	**Field Duplicate**	**EP2304519**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	**SD050**	**11/04/2023**	**0967_QC203_230411**	**Interlab Duplicate**	**982488**	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Ellen Brook	**SD050**	**11/04/2023**	**0967_SD050_230411**	**Normal**	**EP2304519**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
Ellen Brook	**SD050**	**18/09/2023**	**0967_SD050_230918**	**Normal**	**EP2312966**	<0.0002	<0.0061	<0.0024	<0.0006	<0.0006	<0.0024	<0.0006	0.0038	0.0038	0.0038
West Bullsbrook	**SD053**	**25/08/2017**	**WB_SS33**	**Normal**	**EP1709257**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	**SD053**	**8/03/2019**	**0967_SD053_190308**	**Normal**	**EP1902156**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**19/11/2019**	**0967_SD053_191119**	**Normal**	**EP1912125**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**13/05/2020**	**0967_QC104_200513**	**Field Duplicate**	**EP2004875**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**13/05/2020**	**0967_QC204_200513**	**Interlab Duplicate**	**719471**	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	**SD053**	**13/05/2020**	**0967_SD053_0.00-0.10_200**	**Normal**	**EP2004875**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	0.0004
West Bullsbrook	**SD053**	**14/10/2020**	**0967_SD053_201014**	**Normal**	**EP2011184**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**21/04/2021**	**0967_SD053_210421**	**Normal**	**EP2104355**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**6/09/2021**	**0967_SD053_210906**	**Normal**	**EP2110381**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	**SD053**	**20/04/2022**	**0967_SD053_220420**	**Normal**	**EP2204595**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**21/09/2022**	**0967_SD053_220921**	**Normal**	**EP2212261**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
West Bullsbrook	**SD053**	**13/04/2023**	**0967_SD053_230413**	**Normal**	**EP2304670**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD053**	**14/09/2023**	**0967_QC116_230914**	**Field Duplicate**	**EP2312714**	<0.0002	<0.0006	<0.0002	<0.0005	<0.0006	<0.0002	<0.0006	0.0006	0.0006	0.0006
West Bullsbrook	**SD053**	**14/09/2023**	**0967_SD053_230914**	**Normal**	**EP2312714**	<0.0002	<0.0006	<0.0002	<0.0005	<0.0006	<0.0002	<0.0005	0.0005	0.0005	0.0005
West Bullsbrook	**SD055**	**25/08/2017**	**WB_SS35**	**Normal**	**EP1709257**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	**SD055**	**8/03/2019**	**0967_SD055_190308**	**Normal**	**EP1902156**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	**SD055**	**13/06/2019**	**0967_SD055_190613**	**Normal**	**EP1905805**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0016	0.0016
West Bullsbrook	**SD055**	**14/06/2019**	**0967_SD055_190614**	**Normal**	**EP1905807**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
West Bullsbrook	**SD055**	**15/06/2019**	**0967_SD055_190615**	**Normal**	**EP1905844**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**16/06/2019**	**0967_SD055_190616**	**Normal**	**EP1905847**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**17/06/2019**	**0967_SD055_190617**	**Normal**	**EP1905846**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**19/11/2019**	**0967_SD055_191119**	**Normal**	**EP1912125**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**13/05/2020**	**0967_SD055_0.00-0.10_200**	**Normal**	**EP2004875**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**30/06/2020**	**0967_SD055_200630**	**Normal**	**EP2006827**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014	0.0014
West Bullsbrook	**SD055**	**1/07/2020**	**0967_SD055_200701**	**Normal**	**EP2006821**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	**SD055**	**2/07/2020**	**0967_SD055_0.00-0.20_200**	**Normal**	**EP2006882**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**3/07/2020**	**0967_SD055_200703**	**Normal**	**EP2006958**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	**SD055**	**4/07/2020**	**0967_SD055_200704**	**Normal**	**EP2006965**	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005
West Bullsbrook	**SD055**	**14/10/2020**	**0967_SD055_201014**	**Normal**	**EP2011174**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**21/04/2021**	**0967_SD055_210421**	**Normal**	**EP2104358**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	**SD055**	**31/05/2021**	**0967_SD055_210531**	**Normal**	**EP2106118**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**1/06/2021**	**0967_SD055_210601**	**Normal**	**EP2106151**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	**SD055**	**2/06/2021**	**0967_SD055_210602**	**Normal**	**EP2106206**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**3/06/2021**	**0967_SD055_210603**	**Normal**	**EP2106283**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
West Bullsbrook	**SD055**	**4/06/2021**	**0967_SD055_210604**	**Normal**	**EP2106324**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**11/08/2021**	**0967_SD055_210811**	**Normal**	**EP2109323**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**25/08/2021**	**0967_SD055_210825**	**Normal**	**EP2109842**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**6/09/2021**	**0967_SD055_210906_0.10-**	**Normal**	**EP2110381**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**20/04/2022**	**0967_QC108_220420**	**Field Duplicate**	**EP2204595**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	**SD055**	**20/04/2022**	**0967_QC208_220420**	**Interlab Duplicate**	**882820**	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	**SD055**	**20/04/2022**	**0967_SD055_220420**	**Normal**	**EP2204595**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**21/06/2022**	**0967_QC104_220621**	**Field Duplicate**	**EP2207629**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0040	0.0040	0.0040
West Bullsbrook	**SD055**	**21/06/2022**	**0967_QC204_220621**	**Interlab Duplicate**	**901657**	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.0008	0.0008	0.0008
West Bullsbrook	**SD055**	**21/06/2022**	**0967_SD055_220621**	**Normal**	**EP2207629**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0029	0.0029	0.0029
West Bullsbrook	**SD055**	**22/06/2022**	**0967_QC109_220622**	**Field Duplicate**	**EP2207735**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
West Bullsbrook	**SD055**	**22/06/2022**	**0967_QC209_220621**	**Interlab Duplicate**	**901660**	<0.0004	<0.0004	<0.0004	<0.0008	<0.0004	<0.0004	<0.0008	0.041	0.041	0.041
West Bullsbrook	**SD055**	**22/06/2022**	**0967_SD055_220622**	**Normal**	**EP2207735**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	**SD055**	**23/06/2022**	**0967_SD055_220623**	**Normal**	**EP2207825**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014	0.0017
West Bullsbrook	**SD055**	**24/06/2022**	**0967_SD055_220624**	**Normal**	**EP2207892**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	**SD055**	**25/06/2022**	**0967_SD055_220625**	**Normal**	**EP2207910**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	**SD055**	**21/09/2022**	**0967_SD055_220921**	**Normal**	**EP2212261**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0030	0.0030	0.0030
West Bullsbrook	**SD055**	**13/04/2023**	**0967_SD055_230413**	**Normal**	**EP2304670**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**9/06/2023**	**0967_SD055_230609**	**Normal**	**EP2307633**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0011	0.0011	0.0011
West Bullsbrook	**SD055**	**10/06/2023**	**0967_SD055_230610**	**Normal**	**EP2307677**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**11/06/2023**	**0967_SD055_230611**	**Normal**	**EP2307679**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD055**	**12/06/2023**	**0967_SD055_230612**	**Normal**	**EP2307716**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
West Bullsbrook	**SD055**	**13/06/2023**	**0967_SD055_230613**	**Normal**	**EP2307805**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	0.0015	0.0015
West Bullsbrook	**SD055**	**14/09/2023**	**0967_SD055_230914**	**Normal**	**EP2312714**	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	0.0012	0.0012
West Bullsbrook	**SD058**	**25/08/2017**	**WB_SS38**	**Normal**	**EP1709257**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**8/03/2019**	**0967_SD058_190308**	**Normal**	**EP1902156**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	**SD058**	**13/06/2019**	**0967_SD058_190613**	**Normal**	**EP1905805**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**14/06/2019**	**0967_SD058_190614**	**Normal**	**EP1905807**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**15/06/2019**	**0967_QC122_190615**	**Field Duplicate**	**EP1905844**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**15/06/2019**	**0967_QC222_190615**	**Interlab Duplicate**	**228322**	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001		<0.0001
West Bullsbrook	**SD058**	**15/06/2019**	**0967_SD058_190615**	**Normal**	**EP1905844**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**16/06/2019**	**0967_SD058_190616**	**Normal**	**EP1905847**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**17/06/2019**	**0967_QC131_190617**	**Field Duplicate**	**EP1905846**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	**SD058**	**17/06/2019**	**0967_QC231_190617**	**Interlab Duplicate**	**228323**	<0.001	<0.001	<0.0002	<0.001	<0.001	<0.0002	<0.005	<0.0001		<0.0001
West Bullsbrook	**SD058**	**17/06/2019**	**0967_SD058_190617**	**Normal**	**EP1905846**	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
West Bullsbrook	SD058	28/10/2019	0967_SD058_191028	Normal	EP1911091	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	7/05/2020	0967_SD058_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	30/06/2020	0967_SD058_200630	Normal	EP2006827	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0043
West Bullsbrook	SD058	1/07/2020	0967_SD058_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0014	0.0014
West Bullsbrook	SD058	2/07/2020	0967_SD058_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	SD058	3/07/2020	0967_SD058_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	4/07/2020	0967_SD058_200704	Normal	EP2006965	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005
West Bullsbrook	SD058	12/10/2020	0967_QC107_201012	Field Duplicate	EP2010997	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	12/10/2020	0967_QC207_201012	Interlab Duplicate	750345	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD058	12/10/2020	0967_SD058_201012	Normal	EP2010997	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	20/04/2021	0967_SD058_210420	Normal	EP2104291	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	31/05/2021	0967_SD058_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	1/06/2021	0967_SD058_210601	Normal	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	2/06/2021	0967_SD058_210602	Normal	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	3/06/2021	0967_SD058_210603	Normal	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	4/06/2021	0967_SD058_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	10/08/2021	0967_SD058_210810	Normal	EP2109323	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	SD058	24/08/2021	0967_SD058_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	7/09/2021	0967_QC104_210907	Field Duplicate	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	7/09/2021	0967_QC204_210907	Interlab Duplicate	823604	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD058	7/09/2021	0967_SD058_210907	Normal	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	21/04/2022	0967_SD058_220421	Normal	EP2204669	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	21/06/2022	0967_SD058_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0020	0.0020	0.0020
West Bullsbrook	SD058	22/06/2022	0967_SD058_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
West Bullsbrook	SD058	23/06/2022	0967_SD058_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0022	0.0022	0.0022
West Bullsbrook	SD058	24/06/2022	0967_SD058_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
West Bullsbrook	SD058	25/06/2022	0967_SD058_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	SD058	19/09/2022	0967_SD058_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
West Bullsbrook	SD058	11/04/2023	0967_SD058_0.10_230411	Normal	EP2304519	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	SD058	9/06/2023	0967_SD058_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0031	0.0031	0.0031
West Bullsbrook	SD058	10/06/2023	0967_SD058_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
West Bullsbrook	SD058	11/06/2023	0967_SD058_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0016	0.0016	0.0016
West Bullsbrook	SD058	12/06/2023	0967_SD058_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	SD058	13/06/2023	0967_SD058_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	14/09/2023	0967_SD058_230914	Normal	EP2312714	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	14/09/2023	0967_QC114_230914	Field Duplicate	EP2312714	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD058	14/09/2023	0967_QC214_230914	Interlab Duplicate	1026632	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD058	14/09/2023	0967_SD058_230914	Normal	EP2312714	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	25/08/2017	WB_SS40	Normal	EP1709257	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	7/03/2019	0967_SD060_190307	Normal	EP1902154	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
West Bullsbrook	SD060	13/06/2019	0967_SD060_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	SD060	14/06/2019	0967_SD060_190614	Normal	EP1905807	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
West Bullsbrook	SD060	15/06/2019	0967_SD060_190615	Normal	EP1905844	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	SD060	16/06/2019	0967_SD060_190616	Normal	EP1905847	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	SD060	17/06/2019	0967_SD060_190617	Normal	EP1905846	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
West Bullsbrook	SD060	7/11/2019	0967_SD060_191107	Normal	EP1911619	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0005	0.0005	0.0005
West Bullsbrook	SD060	7/05/2020	0967_SD060_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
West Bullsbrook	SD060	30/06/2020	0967_SD060_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0013	0.0013	0.0013
West Bullsbrook	SD060	1/07/2020	0967_SD060_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
West Bullsbrook	SD060	2/07/2020	0967_SD060_200702	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	3/07/2020	0967_SD060_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0002	0.0002	0.0002
West Bullsbrook	SD060	4/07/2020	0967_SD060_200704	Normal	EP2006965	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
West Bullsbrook	SD060	14/10/2020	0967_SD060_201014	Normal	EP2011174	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0033	0.0033	0.0033
West Bullsbrook	SD060	20/04/2021	0967_SD060_210420	Normal	EP2104291	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	31/05/2021	0967_QC103_210531	Field Duplicate	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	31/05/2021	0967_SD060_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	1/06/2021	0967_QC104_210601	Field Duplicate	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	1/06/2021	0967_QC204_210601	Interlab Duplicate	800042	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD060	1/06/2021	0967_SD060_210601	Normal	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	2/06/2021	0967_SD060_210602	Normal	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	3/06/2021	0967_SD060_210603	Normal	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	4/06/2021	0967_SD060_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
West Bullsbrook	SD060	24/08/2021	0967_SD060_210824	Normal	EP2109842	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0149	0.0149	0.0149
West Bullsbrook	SD060	7/09/2021	0967_QC105_210907	Field Duplicate	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
West Bullsbrook	SD060	7/09/2021	0967_QC205_210907	Interlab Duplicate	823604	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD060	7/09/2021	0967_SD060_210907	Normal	EP2110444	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0127	0.0127	0.0127
West Bullsbrook	SD060	20/04/2022	0967_SD060_220420	Normal	EP2204595	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0004	0.0004	0.0004
West Bullsbrook	SD060	21/06/2022	0967_SD060_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
West Bullsbrook	SD060	22/06/2022	0967_SD060_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0012	0.0012	0.0012
West Bullsbrook	SD060	23/06/2022	0967_SD060_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0008	0.0008	0.0008
West Bullsbrook	SD060	24/06/2022	0967_SD060_220624	Normal	EP2207892	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0017	0.0017	0.0017
West Bullsbrook	SD060	25/06/2022	0967_SD060_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0022	0.0022	0.0022
West Bullsbrook	SD060	19/09/2022	0967_SD060_220919	Normal	EP2212079	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0043	0.0043	0.0043
West Bullsbrook	SD060	11/04/2023	0967_SD060_0.10_230411	Normal	EP2304519	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0029	0.0029	0.0029
West Bullsbrook	SD060	9/06/2023	0967_SD060_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0054	0.0054	0.0054
West Bullsbrook	SD060	10/06/2023	0967_SD060_230610	Normal	EP2307674	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0010	0.0010	0.0010
West Bullsbrook	SD060	11/06/2023	0967_SD060_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
West Bullsbrook	SD060	12/06/2023	0967_QC119_230612	Field Duplicate	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0007	0.0007	0.0007
West Bullsbrook	SD060	12/06/2023	0967_QC219_230612	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
West Bullsbrook	SD060	12/06/2023	0967_SD060_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0009	0.0009	0.0009
West Bullsbrook	SD060	13/06/2023	0967_SD060_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0014	0.0016	0.0016

Table 5 - Sediment Analytical Results

						PFAS - Perfluoroalkyl Sulfonamides							PFAS		
						Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	Sum of PFHxS and PFOS	Sum of PFAS (WA DER List)	Sum of PFAS
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR - Limit of Reporting						0.0002	0.0004	0.0002	0.0005	0.0004	0.0002	0.0005	0.0001	0.0002	0.0001
Monitoring Area	**Location Code**	**Date**	**Field ID**	**Sample Type**	**Lab Report Num**										
West Bullsbrook	SD060	14/09/2023	0967_SD060_230914	Normal	EP2312714	<0.0005	<0.0012	<0.0005	<0.0005	<0.0012	<0.0005	<0.0005	0.0042	0.0042	0.0042
Twin Swamps NR	SD061	30/08/2017	TS01	Normal	EP1709385	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	11/03/2019	0967_SD061_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	13/06/2019	0967_SD061_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	4/12/2019	0967_SD061_191204	Normal	EP1912894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0013	0.0013	0.0013
Twin Swamps NR	SD061	7/05/2020	0967_SD061_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	30/06/2020	0967_SD061_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0010	<0.0010	<0.0010
Twin Swamps NR	SD061	1/07/2020	0967_SD061_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	2/07/2020	0967_SD061_0.00-0.10_200	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	3/07/2020	0967_SD061_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0010	0.0010
Twin Swamps NR	SD061	4/07/2020	0967_SD061_200704	Normal	EP2006965	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	22/10/2020	0967_SD061_201022	Normal	EP2011547	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0015	0.0015	0.0015
Twin Swamps NR	SD061	19/04/2021	0967_SD061_210419	Normal	EP2104210	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	31/05/2021	0967_SD061_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	1/06/2021	0967_SD061_210601	Normal	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0875	0.0875	0.0902
Twin Swamps NR	SD061	2/06/2021	0967_SD061_210602	Normal	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	3/06/2021	0967_SD061_210603	Normal	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0006	0.0006	0.0006
Twin Swamps NR	SD061	4/06/2021	0967_SD061_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	8/09/2021	0967_SD061_210908	Normal	EP2110528	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	21/04/2022	0967_SD061_220421	Normal	EP2204672	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	21/06/2022	0967_SD061_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	22/06/2022	0967_SD061_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	23/06/2022	0967_SD061_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	24/06/2022	0967_SD061_220624	Normal	EP2207894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Twin Swamps NR	SD061	25/06/2022	0967_SD061_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	21/09/2022	0967_SD061_220921	Normal	EP2212259	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	11/04/2023	0967_SD061_230411	Normal	EP2304519	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	9/06/2023	0967_SD061_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	10/06/2023	0967_SD061_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	11/06/2023	0967_SD061_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	12/06/2023	0967_SD061_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Twin Swamps NR	SD061	13/06/2023	0967_SD061_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD061	18/09/2023	0967_SD061_230918	Normal	EP2312966	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	30/08/2017	TS02	Normal	EP1709385	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	11/03/2019	0967_SD062_190311	Normal	EP1902248	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0003	0.0003	0.0003
Twin Swamps NR	SD062	13/06/2019	0967_SD062_190613	Normal	EP1905805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	4/12/2019	0967_SD062_191204	Normal	EP1912894	<0.0005	<0.0012	<0.0005	<0.0012	<0.0012	<0.0005	<0.0012	<0.0005	<0.0005	<0.0005
Twin Swamps NR	SD062	7/05/2020	0967_SD062_200507	Normal	EP2004665	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	30/06/2020	0967_SD062_200630	Normal	EP2006824	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	1/07/2020	0967_SD062_200701	Normal	EP2006821	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	2/07/2020	0967_SD062_0.00-0.20_200	Normal	EP2006882	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0010	0.0010
Twin Swamps NR	SD062	3/07/2020	0967_SD062_200703	Normal	EP2006958	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	4/07/2020	0967_SD062_200704	Normal	EP2006965	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	22/10/2020	0967_SD062_201022	Normal	EP2011547	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	19/04/2021	0967_SD062_210419	Normal	EP2104210	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	31/05/2021	0967_SD062_210531	Normal	EP2106118	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	1/06/2021	0967_SD062_210601	Normal	EP2106151	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	2/06/2021	0967_SD062_210602	Normal	EP2106206	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0004	0.0004
Twin Swamps NR	SD062	3/06/2021	0967_SD062_210603	Normal	EP2106283	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	4/06/2021	0967_SD062_210604	Normal	EP2106324	<0.0002	<0.0005	<0.0002	0.0007	<0.0005	<0.0002	<0.0005	<0.0002	0.0004	0.0011
Twin Swamps NR	SD062	8/09/2021	0967_SD062_210908	Normal	EP2110528	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	21/04/2022	0967_SD062_220421	Normal	EP2204672	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	21/06/2022	0967_SD062_220621	Normal	EP2207629	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	22/06/2022	0967_SD062_220622	Normal	EP2207735	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	23/06/2022	0967_SD062_220623	Normal	EP2207825	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	24/06/2022	0967_SD062_220624	Normal	EP2207894	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0071	0.0071	0.0071
Twin Swamps NR	SD062	25/06/2022	0967_SD062_220625	Normal	EP2207910	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	20/09/2022	0967_QC217_220920	Interlab Duplicate	926012	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Twin Swamps NR	SD062	21/09/2022	0967_QC117_220921	Field Duplicate	EP2212259	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	21/09/2022	0967_SD062_220921	Normal	EP2212259	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	11/04/2023	0967_SD062_230411	Normal	EP2304519	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	0.0019	0.0019	0.0019
Twin Swamps NR	SD062	9/06/2023	0967_QC104_230609	Field Duplicate	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	9/06/2023	0967_QC204_230609	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Twin Swamps NR	SD062	9/06/2023	0967_SD062_230609	Normal	EP2307633	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	10/06/2023	0967_QC107_230610	Field Duplicate	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	10/06/2023	0967_QC207_230610	Interlab Duplicate	999535	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.05
Twin Swamps NR	SD062	10/06/2023	0967_SD062_230610	Normal	EP2307677	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	11/06/2023	0967_SD062_230611	Normal	EP2307679	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002
Twin Swamps NR	SD062	12/06/2023	0967_SD062_230612	Normal	EP2307719	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0005	0.0005
Twin Swamps NR	SD062	13/06/2023	0967_SD062_230613	Normal	EP2307805	<0.0002	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0005	<0.0002	0.0003	0.0003
Twin Swamps NR	SD062	18/09/2023	0967_SD062_230918	Normal	EP2312966	<0.0005	0.0026	<0.0005	<0.0014	0.0040	<0.0005	<0.0014	<0.0002	<0.0002	0.0066

Notes:

First time detection of PFOA or PFHxS+PFOS

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW015	31/10/2016	1.41	43.86	
MW015	8/12/2016	1.745	43.525	
MW015	20/09/2017	1.012	44.258	
MW015	4/04/2018	1.795	43.475	
MW015	6/03/2019	1.851	43.419	
MW015	29/10/2019	1.375	43.895	
MW015	12/05/2020	0.98	44.29	
MW015	13/10/2020	1.09	44.18	
MW015	29/04/2021	2.03	43.24	
MW015	13/08/2021	0.487	44.783	
MW015	20/09/2021	0.9	44.37	
MW015	28/04/2022			SWL below hydrasleeve no SWL reading taken. not enough water for field parameters
MW015	26/09/2022	0.79	44.48	
MW015	24/04/2023	2.13	43.14	
MW015	25/09/2023	1.02	44.25	
MW052	31/10/2016	2.912	41.922	
MW052	7/12/2016	4.613	40.221	
MW052	19/09/2017	2.059	42.775	
MW052	6/03/2019			Dry
MW052	29/10/2019	3.636	41.198	
MW052	12/05/2020			SWL below Hydrasleeve
MW052	13/10/2020	3.25	41.584	
MW052	29/04/2021	5.075	39.759	
MW052	20/09/2021	1.56	43.274	
MW052	28/04/2022	4.837	39.997	Insufficient water to take field readings
MW052	26/09/2022	1.03	43.804	
MW052	24/04/2023	5.18	39.654	
MW052	25/09/2023	1.39	43.444	
MW053	31/10/2016	3.354	41.911	
MW053	8/12/2016	5.262	40.003	
MW053	20/09/2017	2.352	42.913	
MW053	4/04/2018	5.935	39.33	
MW053	6/03/2019	5.941	39.324	
MW053	29/10/2019	3.73	41.535	
MW053	12/05/2020			Dry
MW053	13/10/2020	2.85	42.415	
MW053	29/04/2021			Dry
MW053	20/09/2021	1.25	44.015	
MW053	28/04/2022			Dry
MW053	26/09/2022	1.095	44.17	
MW053	24/04/2023			Dry
MW053	25/09/2023	1.6	43.665	
MW055	31/10/2016	3.122	42.81	
MW055	8/12/2016	4.126	41.806	
MW055	20/09/2017	1.951	43.981	
MW055	4/04/2018	4.903	41.029	
MW055	6/03/2019	4.911	41.021	
MW055	29/10/2019	3.732	42.2	
MW055	12/05/2020	4.069	41.863	
MW055	16/10/2020			Gatic stuck can't open well
MW055	29/04/2021			Dry
MW055	13/08/2021	0.808	45.124	
MW055	20/09/2021	2.45	43.482	
MW055	28/04/2022			Dry
MW055	26/09/2022	2.263	43.669	
MW055	24/04/2023			Dry
MW055	25/09/2023	2.82	43.112	
MW101	1/11/2016	8.453	36.826	
MW101	8/12/2016	8.431	36.848	
MW101	20/09/2017	8.556	36.723	
MW101	4/04/2018	8.595	36.684	
MW101	6/03/2019	8.423	36.856	
MW101	29/10/2019	8.57	36.709	
MW101	12/05/2020	8.85	36.429	
MW101	13/10/2020	8.63	36.649	
MW101	29/04/2021	8.89	36.389	
MW101	20/09/2021	8.82	36.459	
MW101	28/04/2022	8.75	36.529	
MW101	26/09/2022	8.712	36.567	
MW101	24/04/2023	8.77	36.509	
MW101	25/09/2023	8.86	36.419	
MW102	1/11/2016	8.021	36.723	
MW102	8/12/2016	7.995	36.749	
MW102	20/09/2017	8.125	36.619	
MW102	4/04/2018	8.15	36.594	
MW102	6/03/2019	7.98	36.764	
MW102	29/10/2019	8.035	36.709	
MW102	12/05/2020	8.9	35.844	Dipper started playing up
MW102	13/10/2020	8.2	36.544	
MW102	29/04/2021	8.442	36.302	
MW102	20/09/2021	8.4	36.344	
MW102	28/04/2022	8.42	36.324	
MW102	26/09/2022	8.29	36.454	
MW102	24/04/2023	8.36	36.384	
MW102	25/09/2023	8.41	36.334	
MW103	1/11/2016	9.589	34.493	
MW103	8/12/2016	9.607	34.475	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW103	19/09/2017	9.728	34.354	
MW103	5/04/2018	9.977	34.105	
MW103	6/03/2019	9.851	34.231	
MW103	1/04/2019	9.941	34.141	
MW103	28/10/2019	9.685	34.397	
MW103	12/05/2020			Dipper not working
MW103	13/10/2020	9.92	34.162	
MW103	29/04/2021	10.449	33.633	
MW103	20/09/2021	10.1	33.982	
MW103	29/10/2021	9.991	34.091	
MW103	28/04/2022	10.46	33.622	
MW103	22/09/2022	10	34.082	
MW103	17/04/2023	10.51	33.572	
MW103	25/09/2023	10.18	33.902	
MW104	31/10/2016	6.962	33.282	
MW104	7/12/2016	7.01	33.234	
MW104	18/09/2017	7.159	33.085	
MW104	6/03/2019	7.446	32.798	
MW104	29/10/2019	7.222	33.022	
MW104	12/05/2020			Dry
MW104	22/10/2020	7.506	32.738	
MW104	29/04/2021	8.34	31.904	
MW104	13/08/2021	7.68	32.564	
MW104	20/09/2021	7.63	32.614	
MW104	21/04/2022	8.14	32.104	
MW104	26/09/2022	7.542	32.702	
MW104	12/04/2023	8.225	32.019	
MW104	25/09/2023	7.79	32.454	
MW105	31/10/2016	6.814	33.258	
MW105	7/12/2016	6.873	33.199	
MW105	19/09/2017	6.992	33.08	
MW105	6/03/2019	7.291	32.781	
MW105	29/10/2019	7.074	32.998	
MW105	12/05/2020			Dipper broken
MW105	22/10/2020	7.36	32.712	
MW105	29/04/2021	8.168	31.904	
MW105	13/08/2021			Dry
MW105	20/09/2021	7.73	32.342	
MW105	21/04/2022	7.95	32.122	
MW105	26/09/2022	7.347	32.725	
MW105	12/04/2023	8.035	32.037	
MW105	25/09/2023	7.6	32.472	
MW107	31/10/2016	8.698	37.973	
MW107	7/12/2016	8.7	37.971	
MW107	19/09/2017	8.832	37.839	
MW107	6/03/2019	8.788	37.883	
MW107	29/10/2019	8.705	37.966	
MW107	12/05/2020	8.874	37.797	
MW107	13/10/2020	8.71	37.961	
MW107	29/04/2021	9.27	37.401	
MW107	20/09/2021	9.02	37.651	
MW107	28/04/2022	9.21	37.461	
MW107	26/09/2022	8.665	38.006	
MW107	24/04/2023	9.1	37.571	
MW107	25/09/2023	9	37.671	
MW109	31/10/2016	9.354	37.912	
MW109	7/12/2016	9.365	37.901	
MW109	19/09/2017	10.499	36.767	
MW109	6/03/2019	9.441	37.825	
MW109	29/10/2019	9.372	37.894	
MW109	12/05/2020	9.85	37.416	
MW109	13/10/2020	9.535	37.731	
MW109	29/04/2021	9.993	37.273	
MW109	20/09/2021	9.68	37.586	
MW109	28/04/2022	9.865	37.401	
MW109	26/09/2022	9.577	37.689	
MW109	24/04/2023	9.76	37.506	
MW109	25/09/2023	9.715	37.551	
MW110	31/10/2016	10.122	37.799	
MW110	7/12/2016	10.126	37.795	
MW110	20/09/2017	10.306	37.615	
MW110	6/03/2019	10.151	37.77	
MW110	29/10/2019	10.152	37.769	
MW110	12/05/2020	10.62	37.301	
MW110	13/10/2020	10.33	37.591	
MW110	29/04/2021	10.665	37.256	
MW110	20/09/2021	10.45	37.471	
MW110	28/04/2022	10.497	37.424	
MW110	26/09/2022	10.345	37.576	
MW110	24/04/2023	10.5	37.421	
MW110	25/09/2023	12.16	35.761	
MW112	1/11/2016	13.499	37.792	
MW112	8/12/2016	13.47	37.821	
MW112	29/09/2017	13.612	37.679	
MW112	26/03/2018	13.66	37.631	
MW112	7/03/2019	13.411	37.88	
MW112	4/04/2019	13.527	37.764	
MW112	23/10/2019	13.326	37.965	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW112	4/05/2020	13.84	37.451	
MW112	12/10/2020	13.63	37.661	
MW112	20/04/2021	13.964	37.327	
MW112	8/09/2021	13.78	37.511	
MW112	29/10/2021	14.049	37.242	
MW112	19/04/2022	13.97	37.321	
MW112	22/09/2022	13.673	37.618	
MW112	31/10/2022	13.541	37.75	
MW112	12/04/2023	13.83	37.461	
MW112	13/09/2023	14.02	37.271	
MW113	1/11/2016	13.749	37.705	
MW113	8/12/2016	13.695	37.759	
MW113	28/09/2017	13.854	37.6	
MW113	27/03/2018	13.93	37.524	
MW113	7/03/2019			Dry
MW113	4/04/2019	13.765	37.689	
MW113	23/10/2019	13.62	37.834	
MW113	4/05/2020	14.125	37.329	
MW113	12/10/2020	13.875	37.579	
MW113	20/04/2021	14.214	37.24	
MW113	20/09/2021	14.01	37.444	
MW113	29/10/2021	13.947	37.507	
MW113	19/04/2022	14.23	37.224	
MW113	22/09/2022	13.91	37.544	
MW113	20/11/2022	13.73	37.724	
MW113	12/04/2023	14.07	37.384	
MW113	13/09/2023			SWL not recorded in field notes
MW114	7/12/2016	1.34	42.934	
MW114	28/09/2017	1.1	43.174	
MW114	8/03/2019	2.328	41.946	
MW114	7/11/2019			No SWL taken
MW114	6/05/2020	2.52	41.754	
MW114	13/10/2020	1.1	43.174	
MW114	19/04/2021	2.521	41.753	
MW114	10/09/2021	0.64	43.634	
MW114	19/04/2022	2.53	41.744	
MW114	22/09/2022	0.56	43.714	
MW114	11/04/2023	2.465	41.809	
MW114	14/09/2023	1.21	43.064	
MW115	7/12/2016	2.312	31.421	
MW115	18/09/2017	1.833	31.9	
MW115	7/03/2019	3.067	30.666	
MW115	30/10/2019	2.33	31.403	
MW115	13/05/2020	3.41	30.323	
MW115	12/10/2020	2.154	31.579	
MW115	19/04/2021	3.32	30.413	
MW115	9/09/2021	1.82	31.913	
MW115	20/04/2022	3.45	30.283	
MW115	22/09/2022	1.665	32.068	
MW115	12/04/2023	2.4	31.333	
MW115	13/09/2023	2.09	31.643	
MW116	7/12/2016	15.327	36.337	
MW116	28/09/2017	15.374	36.29	
MW116	8/03/2019	15.109	36.555	
MW116	29/10/2019	15.35	36.314	
MW116	4/05/2020	15.575	36.089	
MW116	12/10/2020	15.266	36.398	
MW116	19/04/2021	15.816	35.848	
MW116	8/09/2021	15.62	36.044	
MW116	19/04/2022	15.96	35.704	
MW116	22/09/2022	15.386	36.278	
MW116	12/04/2023	15.73	35.934	
MW116	13/09/2023	15.56	36.104	
MW117	7/12/2016	10.805	33.795	
MW117	18/09/2017	10.959	33.641	
MW117	5/04/2018	11.2	33.4	
MW117	7/03/2019	11.016	33.584	
MW117	3/04/2019	11.152	33.448	
MW117	29/10/2019	10.8	33.8	
MW117	4/05/2020	11.517	33.083	
MW117	12/10/2020	11.151	33.449	
MW117	19/04/2021			Dry
MW117	7/09/2021	11.38	33.22	
MW117	29/10/2021	11.321	33.279	
MW117	19/04/2022	11.71	32.89	
MW117	19/09/2022	11.22	33.38	
MW117	17/04/2023	11.75	32.85	
MW117	11/09/2023	11.53	33.07	
MW118	7/12/2016	5.708	32.508	
MW118	18/09/2017	5.815	32.401	
MW118	5/03/2019	6.252	31.964	
MW118	30/10/2019	5.87	32.346	
MW118	4/05/2020	6.635	31.581	
MW118	12/10/2020	6.245	31.971	
MW118	19/04/2021	6.6	31.616	
MW118	13/08/2021	6.674	31.542	
MW118	7/09/2021	6.33	31.886	
MW118	19/04/2022	6.96	31.256	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW118	19/09/2022	6.255	31.961	
MW118	12/04/2023	7.086	31.13	
MW118	11/09/2023	6.62	31.596	
MW119	7/12/2016	2.418	30.33	
MW119	18/09/2017	2.037	30.711	
MW119	5/03/2019	3.397	29.351	
MW119	29/10/2019	2.53	30.218	
MW119	4/05/2020	3.865	28.883	
MW119	12/10/2020	2.895	29.853	
MW119	19/04/2021	3.93	28.818	
MW119	7/09/2021	2.445	30.303	
MW119	19/04/2022	3.92	28.828	
MW119	19/09/2022	2.415	30.333	
MW119	12/04/2023	4.02	28.728	
MW119	11/09/2023	3.2	29.548	
MW120	7/12/2016	1.324	28.146	
MW120	18/09/2017	0.851	28.619	
MW120	6/03/2019	2.067	27.403	
MW120	29/10/2019	1.4	28.07	
MW120	5/05/2020	2.37	27.1	
MW120	12/10/2020	1.21	28.26	
MW120	19/04/2021	1.92	27.55	
MW120	8/09/2021	0.83	28.64	
MW120	20/04/2022	2.31	27.16	
MW120	20/09/2022	0.66	28.81	
MW120	12/04/2023	2.34	27.13	
MW120	11/09/2023	1.12	28.35	
MW121	7/12/2016	3.11	27.061	
MW121	18/09/2017	3.02	27.151	
MW121	6/03/2019	4.564	25.607	
MW121	29/10/2019	3.44	26.731	
MW121	3/06/2020	4.79	25.381	
MW121	12/10/2020	3.625	26.546	
MW121	19/04/2021	4.98	25.191	
MW121	8/09/2021	3.29	26.881	
MW121	19/04/2022	4.29	25.881	
MW121	20/09/2022	3.34	26.831	
MW121	12/04/2023	4.95	25.221	
MW121	11/09/2023	3.71	26.461	
MW122D	3/10/2017	1.611	31.12	
MW122D	8/03/2019	3.101	29.63	
MW122D	30/10/2019	2.25	30.481	
MW122D	13/05/2020	3.47	29.261	
MW122D	12/10/2020	2.161	30.57	
MW122D	19/04/2021	3.32	29.411	
MW122D	9/09/2021	1.8	30.931	
MW122D	20/04/2022	3.365	29.366	
MW122D	20/09/2022	1.68	31.051	
MW122D	12/04/2023	3.358	29.373	
MW122D	13/09/2023	2.05	30.681	
MW122S	4/10/2017	1.695	30.996	
MW122S	8/03/2019	3.175	29.516	
MW122S	30/10/2019	2.45	30.241	
MW122S	13/05/2020	3.577	29.114	
MW122S	12/10/2020	2.98	29.711	
MW122S	19/04/2021	3.43	29.261	
MW122S	9/09/2021	1.78	30.911	
MW122S	20/04/2022	3.445	29.246	
MW122S	20/09/2022	1.67	31.021	
MW122S	12/04/2023	3.656	29.035	
MW122S	13/09/2023	2.05	30.641	
MW123D	3/10/2017	1.905	30.637	
MW123D	8/03/2019	3.483	29.059	
MW123D	30/10/2019	2.465	30.077	
MW123D	13/05/2020	2.72	29.822	
MW123D	22/10/2020	2.613	29.929	
MW123D	19/04/2021	3.53	29.012	
MW123D	8/09/2021	2.1	30.442	
MW123D	20/04/2022	3.66	28.882	
MW123D	20/09/2022	1.96	30.582	
MW123D	12/04/2023	3.65	28.892	
MW123D	13/09/2023	4.52	28.022	
MW123S	4/10/2017	2.003	30.598	
MW123S	8/03/2019	3.482	29.119	
MW123S	30/10/2019	2.48	30.121	
MW123S	13/05/2020	3.79	28.811	
MW123S	22/10/2020	2.636	29.965	
MW123S	19/04/2021	3.27	29.331	
MW123S	11/08/2021	2.128	30.473	
MW123S	8/09/2021	2.14	30.461	
MW123S	20/04/2022	3.42	29.181	
MW123S	20/09/2022	2.02	30.581	
MW123S	12/04/2023	3.673	28.928	
MW123S	13/09/2023	2.48	30.121	
MW124D	3/10/2017	0.423	29.771	
MW124D	8/03/2019	2.186	28.008	
MW124D	29/10/2019	1.23	28.964	
MW124D	5/05/2020	2.335	27.859	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW124D	12/10/2020	1.064	29.13	
MW124D	20/04/2021	2.251	27.943	
MW124D	9/09/2021	0.596	29.598	
MW124D	21/04/2022	2.3	27.894	
MW124D	20/09/2022	0.47	29.724	
MW124D	12/04/2023	2.519	27.675	
MW124D	19/09/2023	0.91	29.284	
MW124S	4/10/2017	0.429	29.697	
MW124S	8/03/2019	2.142	27.984	
MW124S	29/10/2019	1.19	28.936	
MW124S	5/05/2020	2.31	27.816	
MW124S	12/10/2020	0.992	29.134	
MW124S	20/04/2021	2.19	27.936	
MW124S	9/09/2021	0.531	29.595	
MW124S	21/04/2022	1.21	28.916	
MW124S	20/09/2022	0.4	29.726	
MW124S	12/04/2023	2.22	27.906	
MW124S	19/09/2023	0.86	29.266	
MW125D	4/10/2017	0.735	32.469	
MW125D	12/03/2019	2.191	31.013	
MW125D	19/11/2019	0.441	32.763	
MW125D	13/05/2020	2.285	30.919	
MW125D	14/10/2020	1.161	32.043	
MW125D	21/04/2021	2.43	30.774	
MW125D	6/09/2021	0.678	32.526	
MW125D	20/04/2022	2.36	30.844	
MW125D	21/09/2022	0.59	32.614	
MW125D	13/04/2023	2.3	30.904	
MW125D	14/09/2023	0.94	32.264	
MW125S	10/10/2017	1.09	32.213	
MW125S	12/03/2019	2.391	30.912	
MW125S	19/11/2019	0.65	32.653	
MW125S	13/05/2020	2.5	30.803	
MW125S	14/10/2020	1.333	31.97	
MW125S	21/04/2021	2.89	30.413	
MW125S	11/08/2021	0.479	32.824	
MW125S	6/09/2021	0.83	32.473	
MW125S	20/04/2022	2.61	30.693	
MW125S	21/09/2022	0.69	32.613	
MW125S	13/04/2023	2.56	30.743	
MW125S	14/09/2023	0.91	32.393	
MW126	10/10/2017	0.997	34.66	
MW126	12/03/2019	1.848	33.809	
MW126	19/11/2019	11.005	24.652	
MW126	13/05/2020	1.98	33.677	
MW126	14/10/2020	1.395	34.262	
MW126	21/04/2021	1.89	33.767	
MW126	6/09/2021	0.865	34.792	
MW126	20/04/2022	1.98	33.677	
MW126	23/09/2022	0.745	34.912	
MW126	13/04/2023	0.64	35.017	
MW126	14/09/2023	1.05	34.607	
MW127	10/10/2017	1.345	33.682	
MW127	12/03/2019	2.787	32.24	
MW127	19/11/2019	1.935	33.092	
MW127	13/05/2020	3.26	31.767	
MW127	14/10/2020	1.91	33.117	
MW127	21/04/2021	3.15	31.877	
MW127	9/09/2021	1.287	33.74	
MW127	20/04/2022	3.16	31.867	
MW127	23/09/2022	1.195	33.832	
MW127	13/04/2023	3.06	31.967	
MW127	15/09/2023	1.78	33.247	
MW128D	4/10/2017	0.369	31.963	
MW128D	12/03/2019	1.901	30.431	
MW128D	19/11/2019	1.128	31.204	
MW128D	13/05/2020	2.28	30.052	
MW128D	14/10/2020	0.915	31.417	
MW128D	21/04/2021	2.2	30.132	
MW128D	7/09/2021	0.364	31.968	
MW128D	20/04/2022	2.28	30.052	
MW128D	21/09/2022	0.27	32.062	
MW128D	12/04/2023	2.18	30.152	
MW128D	15/09/2023	0.68	31.652	
MW128S	10/10/2017	0.516	31.797	
MW128S	12/03/2019	1.944	30.369	
MW128S	19/11/2019	1.19	31.123	
MW128S	13/05/2020	2.3	30.013	
MW128S	14/10/2020	0.955	31.358	
MW128S	21/04/2021	2.17	30.143	
MW128S	7/09/2021	0.375	31.938	
MW128S	20/04/2022	2.35	29.963	
MW128S	21/09/2022	0.25	32.063	
MW128S	12/04/2023	2.16	30.153	
MW128S	15/09/2023	0.73	31.583	
MW129D	4/10/2017	1.436	32.302	
MW129D	12/03/2019	3.467	30.271	
MW129D	19/11/2019	1.406	32.332	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW129D	13/05/2020	3.73	30.008	
MW129D	21/04/2021	3.8	29.938	
MW129D	9/09/2021	1.483	32.255	
MW129D	20/04/2022	3.77	29.968	
MW129D	23/09/2022	1.31	32.428	
MW129D	12/04/2023	3.67	30.068	
MW129D	15/09/2023	2.08	31.658	
MW129S	10/10/2017	1.443	32.271	
MW129S	12/03/2019	3.394	30.32	
MW129S	19/11/2019	1.339	32.375	
MW129S	13/05/2020	3.66	30.054	
MW129S	14/10/2020	2.07	31.644	
MW129S	21/04/2021	3.22	30.494	
MW129S	9/09/2021	1.408	32.306	
MW129S	20/04/2022	3.7	30.014	
MW129S	23/09/2022	1.23	32.484	
MW129S	12/04/2023	3.59	30.124	
MW129S	15/09/2023	2.014	31.7	
MW130D	4/10/2017	1.105	31.302	
MW130D	12/03/2019	2.747	29.66	
MW130D	19/11/2019	1.87	30.537	
MW130D	13/05/2020	3.064	29.343	
MW130D	14/10/2020	1.669	30.738	
MW130D	21/04/2021	3.07	29.337	
MW130D	7/09/2021	1.106	31.301	
MW130D	20/04/2022	3.09	29.317	
MW130D	23/09/2022	0.99	31.417	
MW130D	12/04/2023	3.02	29.387	
MW130D	15/09/2023	1.48	30.927	
MW130S	11/10/2017	1.299	31.131	
MW130S	12/03/2019	2.965	29.465	
MW130S	19/11/2019	2.01	30.42	
MW130S	13/05/2020	3.255	29.175	
MW130S	14/10/2020	1.788	30.642	
MW130S	21/04/2021	3.29	29.14	
MW130S	7/09/2021	1.203	31.227	
MW130S	20/04/2022	3.3	29.13	
MW130S	23/09/2022	1.09	31.34	
MW130S	12/04/2023	3.24	29.19	
MW130S	15/09/2023	1.66	30.77	
MW132D	3/10/2017	7.055	35.369	
MW132D	7/03/2019	6.908	35.516	
MW132D	29/10/2019	7.052	35.372	
MW132D	12/05/2020	8.91	33.514	
MW132D	13/10/2020	7.22	35.204	
MW132D	29/04/2021	7.34	35.084	
MW132D	20/09/2021	7.35	35.074	
MW132D	28/04/2022	7.234	35.19	
MW132D	26/09/2022	7.279	35.145	
MW132D	24/04/2023	7.23	35.194	
MW132D	25/09/2023	7.42	35.004	
MW132S	5/10/2017	7.109	35.243	
MW132S	7/03/2019	6.197	36.155	
MW132S	29/10/2019	7.086	35.266	
MW132S	12/05/2020			Swl below hydrasleeve
MW132S	13/10/2020	7.25	35.102	
MW132S	29/04/2021	7.44	34.912	
MW132S	13/08/2021	7.459	34.893	
MW132S	20/09/2021	7.4	34.952	
MW132S	28/04/2022	7.284	35.068	
MW132S	26/09/2022	7.307	35.045	
MW132S	24/04/2023	7.26	35.092	
MW132S	25/09/2023	7.42	34.932	
MW134D	3/10/2017	7.501	32.79	
MW134D	7/03/2019	7.608	32.683	
MW134D	29/10/2019	7.69	32.601	
MW134D	12/05/2020	8.07	32.221	
MW134D	13/10/2020	7.87	32.421	
MW134D	29/04/2021	8.068	32.223	
MW134D	20/09/2021	7.9	32.391	
MW134D	28/04/2022	7.985	32.306	
MW134D	26/09/2022	7.825	32.466	
MW134D	24/04/2023	8.03	32.261	
MW134D	25/09/2023	8.02	32.271	
MW134S	5/10/2017	7.643	32.807	
MW134S	7/03/2019	7.634	32.816	
MW134S	29/10/2019	7.787	32.663	
MW134S	12/05/2020	7.001	33.449	
MW134S	13/10/2020	7.97	32.48	
MW134S	29/04/2021	8.085	32.365	
MW134S	20/09/2021	8	32.45	
MW134S	28/04/2022	7.921	32.529	
MW134S	26/09/2022	7.923	32.527	
MW134S	24/04/2023	8.04	32.41	
MW134S	25/09/2023	8.13	32.32	
MW136	11/10/2017	1.005	32.592	
MW136	8/03/2019	3.402	30.195	
MW136	22/10/2019	1.73	31.867	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW136	6/05/2020	3.675	29.922	
MW136	14/10/2020	1.893	31.704	
MW136	21/04/2021	3.62	29.977	
MW136	6/09/2021	1.026	32.571	
MW136	19/04/2022	3.65	29.947	
MW136	21/09/2022	0.834	32.763	
MW136	11/04/2023	3.675	29.922	
MW136	14/09/2023	1.5	32.097	
MW137	11/10/2017	0.786	33.063	
MW137	8/03/2019	2.847	31.002	
MW137	22/10/2019	1.33	32.519	
MW137	6/05/2020	3.034	30.815	
MW137	14/10/2020	1.406	32.443	
MW137	21/04/2021	3.1	30.749	
MW137	6/09/2021	0.658	33.191	
MW137	19/04/2022	3.03	30.819	
MW137	21/09/2022	0.58	33.269	
MW137	11/04/2023	3.055	30.794	
MW137	14/09/2023	1.2	32.649	
MW138	5/10/2017	0.901	27.681	
MW138	6/03/2019	2.295	26.287	
MW138	29/10/2019	1.61	26.972	
MW138	5/05/2020	2.52	26.062	
MW138	12/10/2020	1.287	27.295	
MW138	19/04/2021	2.44	26.142	
MW138	11/08/2021	0.569	28.013	
MW138	8/09/2021	0.82	27.762	
MW138	20/04/2022	2.62	25.962	
MW138	20/09/2022	0.71	27.872	
MW138	12/04/2023	2.536	26.046	
MW138	11/09/2023	1.21	27.372	
MW139	5/10/2017	2.051	29.399	
MW139	6/03/2019	4.017	27.433	
MW139	30/10/2019	2.698	28.752	
MW139	5/05/2020	4.495	26.955	
MW139	13/10/2020	2.83	28.62	
MW139	19/04/2021	4.5	26.95	
MW139	7/09/2021	2.345	29.105	
MW139	19/04/2022	4.52	26.93	
MW139	20/09/2022	2.35	29.1	
MW139	12/04/2023	4.633	26.817	
MW139	11/09/2023	3.32	28.13	
MW140D	3/10/2017	9.735	19.02	
MW140D	7/03/2019	1.948	26.807	
MW140D	29/10/2019	2.03	26.725	
MW140D	5/05/2020	2.245	26.51	
MW140D	12/10/2020	2.235	26.52	
MW140D	19/04/2021	2.35	26.405	
MW140D	8/09/2021	2.33	26.425	
MW140D	19/04/2022	2.32	26.435	
MW140D	20/09/2022	2.19	26.565	
MW140D	12/04/2023	2.399	26.356	
MW140D	11/09/2023	2.32	26.435	
MW140S	4/10/2017	1.362	27.473	
MW140S	7/03/2019	3.051	25.784	
MW140S	29/10/2019	2.06	26.775	
MW140S	5/05/2020	3.395	25.44	
MW140S	12/10/2020	1.945	26.89	
MW140S	19/04/2021	3.83	25.005	
MW140S	11/08/2021	1.644	27.191	
MW140S	8/09/2021	1.5	27.335	
MW140S	19/04/2022	1.82	27.015	
MW140S	20/09/2022	1.44	27.395	
MW140S	12/04/2023	2.23	26.605	
MW140S	11/09/2023	1.98	26.855	
MW146	10/10/2017	16.437	38.878	
MW146	26/03/2018	16.62	38.695	
MW146	8/03/2019	16.132	39.183	
MW146	23/10/2019	16.145	39.17	
MW146	4/05/2020	16.817	38.498	
MW146	12/10/2020	16.5	38.815	
MW146	19/04/2021	16.905	38.41	
MW146	8/09/2021	16.66	38.655	
MW146	19/04/2022	13.97	41.345	
MW146	22/09/2022	16.488	38.827	
MW146	12/04/2023	16.72	38.595	
MW146	13/09/2023	16.56	38.755	
MW149	10/10/2017	11.305	33.05	
MW149	7/03/2019	11.544	32.811	
MW149	4/04/2019	11.717	32.638	
MW149	29/10/2019	11.35	33.005	
MW149	4/05/2020	12.1	32.255	
MW149	12/10/2020	11.665	32.69	
MW149	20/04/2021	12.3	32.055	
MW149	8/09/2021	15.62	28.735	
MW149	19/04/2022	12.344	32.011	
MW149	19/09/2022	11.691	32.664	
MW149	17/04/2023	12.33	32.025	

Table 6 - Groundwater Gauging Records

Location Code	Date Time	SWL (mbTOC)	RWL (mAHD)	Comments
MW149	13/09/2023	12.14	32.215	
MW150	10/10/2017	16.497	34.112	
MW150	26/03/2018	16.525	34.084	
MW150	8/03/2019	16.312	34.297	
MW150	29/10/2019	16.305	34.304	
MW150	4/05/2020	16.67	33.939	
MW150	12/10/2020	16.523	34.086	
MW150	20/04/2021	16.845	33.764	
MW150	7/09/2021	16.93	33.679	
MW150	20/04/2022	16.945	33.664	
MW150	19/09/2022	16.75	33.859	
MW150	17/04/2023	16.91	33.699	
MW150	13/09/2023	16.86	33.749	
MW155S	29/03/2018	12.188	36.402	
MW155S	3/04/2019	12.071	36.519	
MW155S	22/09/2020	12.222	36.368	
MW155S	17/02/2021	12.424	36.166	
MW155S	29/04/2021	12.1	36.49	
MW155S	20/09/2021	12.37	36.22	
MW155S	16/10/2021	12.268	36.322	
MW155S	28/04/2022	12.56	36.03	
MW155S	22/09/2022	12.275	36.315	
MW155S	1/11/2022	12.168	36.422	
MW155S	19/11/2022	12.298	36.292	
MW155S	24/04/2023	12.46	36.13	
MW155S	25/09/2023	12.52	36.07	
MW202	12/10/2017	6.905	45.689	
MW202	6/04/2018	9	43.594	
MW202	8/03/2019	8.191	44.403	
MW202	22/10/2019	6.825	45.769	
MW202	22/10/2019	6.825	45.769	
MW202	6/05/2020			Dry
MW202	14/10/2020	7.88	44.714	
MW202	21/04/2021	6.3	46.294	
MW202	8/09/2021	7.12	45.474	
MW202	18/10/2021	6.964	45.63	
MW202	19/04/2022	9.19	43.404	
MW202	21/09/2022	6.645	45.949	
MW202	4/11/2022	6.672	45.922	
MW202	12/04/2023	9.05	43.544	
MW202	19/09/2023	7.71	44.884	
MW205	12/10/2017	4.076	40.884	
MW205	5/04/2018	7.745	37.215	
MW205	8/03/2019	6.832	38.128	
MW205	22/10/2019	3.98	40.98	
MW205	4/05/2020	7.689	37.271	
MW205	14/10/2020	6.045	38.915	
MW205	21/04/2021	8.21	36.75	
MW205	8/09/2021	4.01	40.95	
MW205	19/04/2022	7.53	37.43	
MW205	21/09/2022	3.561	41.399	
MW205	12/04/2023			Filled with sludge/mud at 4.5mbgl
MW205	19/09/2023	3.84	41.12	
MW218	31/10/2016	1.78	42.22	
MW218	19/09/2017	1.291	42.709	
MW218	27/03/2018	3.58	40.42	
MW218	7/03/2019	3.541	40.459	
MW218	10/04/2019	3.865	40.135	
MW218	29/10/2019	2.08	41.92	
MW218	13/05/2020			Dry
MW218	22/10/2020	2.36	41.64	
MW218	21/04/2021	4.18	39.82	
MW218	9/09/2021	1.21	42.79	
MW218	20/04/2022	4.26	39.74	
MW218	22/09/2022	1.055	42.945	
MW218	12/04/2023	4.34	39.66	
MW218	19/09/2023	1.1	42.9	

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
Location Code	Date					
MW015	01 Nov 2016	1.49	20.7	78.3	337.5	6.38
MW015	20 Sep 2017	1.67	19.6	129.3	372.3	5.9
MW015	06 Mar 2019	1.06	24.2	86.7	585	6.65
MW015	29 Oct 2019	0.01	19.2	44.8	630	6.2
MW015	29 Oct 2019	0.01	19.2	44.8	630	6.2
MW015	12 May 2020	1.18	20	46.4	1,085	6.25
MW015	13 Oct 2020	1.51	21	90	1,115	5.96
MW015	29 Apr 2021	3.72	22	100.5	585	6.53
MW015	20 Sep 2021	1.56	16.2	-83.5	1,035	6.55
MW015	26 Sep 2022	1.38	17.5	58.5	797	6.34
MW015	24 Apr 2023	1.05	21.2	-22.7	677	6.61
MW015	25 Sep 2023	2.25	19.3	-10.9	636	6.3
MW052	01 Nov 2016	2.73	20.9	68.5	936	6.92
MW052	19 Sep 2017	3.9	21.5	106.3	1,046	6.34
MW052	29 Oct 2019	0.61	20.9	85.9	1,105	6.64
MW052	29 Oct 2019	0.61	20.9	85.9	1,105	6.64
MW052	12 May 2020	6.29	23.7	47.5	1,427	6.91
MW052	13 Oct 2020	3.5	22.6	45.7	1,123	6.36
MW052	29 Apr 2021	4.78	22.3	8.1	719	6.62
MW052	20 Sep 2021	0.49	19.4	-52.8	999	7.03
MW052	26 Sep 2022	0.63	17.8	34.2	920	6.69
MW052	24 Apr 2023	1.66	22.3	3.2	927	6.92
MW052	25 Sep 2023	3.81	19.2	-10	1,031	6.51
MW053	01 Nov 2016	3.45	20.9	69.3	770	6.97
MW053	19 Sep 2017	4.67	21	119.7	580	6.35
MW053	06 Mar 2019	1.78	22.5	47.4	804	7.19
MW053	29 Oct 2019	2.13	20.7	63.8	873	6.64
MW053	29 Oct 2019	2.13	20.7	63.8	873	6.64
MW053	13 Oct 2020	5.65	24.1	68.6	926	6.38
MW053	20 Sep 2021	3.55	18.1	-30.5	832	7.09
MW053	26 Sep 2022	2.87	17.7	46.6	802	6.74
MW053	25 Sep 2023	6.26	20.2	-11.9	474	6.7
MW055	01 Nov 2016	4.87	23	70	558	7.22
MW055	19 Sep 2017	2.35	22.1	108.3	579	6.98
MW055	29 Oct 2019	5.56	21.5	66.6	668	6.84
MW055	29 Oct 2019	5.56	21.5	66.6	668	6.84
MW055	12 May 2020	4.81	22.8	35.5	800	6.89
MW055	20 Sep 2021	5.54	18.4	-27.1	678	7.18
MW055	26 Sep 2022	4.49	19.8	35.9	594	7.11
MW055	25 Sep 2023	4.68	20.8	-8.4	672	7.07
MW101	01 Nov 2016	2.01	22.1	78.2	8,249	5.49
MW101	20 Sep 2017	0.96	23	105.3	3,143	6.17
MW101	06 Mar 2019	2.81	21	123.9	46,936	6.35
MW101	29 Oct 2019	0.04	21.7	52.5	8,828	5.58
MW101	29 Oct 2019	0.04	21.7	52.5	8,828	5.58
MW101	12 May 2020	1.38	20.8	12.8	8,041	6.02
MW101	13 Oct 2020	0.98	23.5	-202.2	5,445	6.12
MW101	29 Apr 2021	1.64	19.9	-40.9	4,610	6.77
MW101	20 Sep 2021	2.31	19.2	-45.2	3,484	6.69
MW101	28 Apr 2022	1.08	20.4	-266.4	4,314	7.05
MW101	26 Sep 2022	3.25	20.5	58.8	2,850	6.74
MW101	24 Apr 2023	2.33	19.9	-98.2	5,503	6.23
MW101	25 Sep 2023	2.22	23.3	-87	262.1	6.1
MW102	01 Nov 2016	0.91	22.5	2.7	6,844	6.11
MW102	19 Sep 2017	0.77	24	113.8	6,880	5.36
MW102	06 Mar 2019	0.89	21.1	153.9	6,596	5.62
MW102	29 Oct 2019	0.24	21.4	150	7,747	5.06
MW102	29 Oct 2019	0.24	21.4	150	7,747	5.06
MW102	29 Oct 2019	0.24	21.4	150	7,747	5.06
MW102	12 May 2020	11.9	21.2	56.5	5,617	5.17
MW102	13 Oct 2020	1.24	23.6	-29.3	7,115	5.12
MW102	29 Apr 2021	22.7	20.2	113.2	6,759	5.77
MW102	20 Sep 2021	0.6	18.9	-109.4	7,357	5.89
MW102	28 Apr 2022	1.26	21.1	-213.3	7,693	6.65
MW102	26 Sep 2022	0.84	20.5	81.2	6,906	5.16
MW102	24 Apr 2023	1.56	19.7	12.4	6,177	5.16
MW103	01 Nov 2016	2.54	21.3	65.3	4,535	5.71
MW103	18 Sep 2017	1.83	24.7	-16.9	4,824	6.66
MW103	05 Mar 2019	4.14	22.7	76	4,491	6.8
MW103	28 Oct 2019	0.31	21.4	-56.7	3,760	7.37
MW103	28 Oct 2019	0.31	21.4	-56.7	3,760	7.37
MW103	12 May 2020	0.83	21.2	49.7	4,324	5.6
MW103	13 Oct 2020	1.38	23.3	108.3	4,408	5.18
MW103	29 Apr 2021	1.67	22.2	111.5	4,729	5.62
MW103	20 Sep 2021	1.8	21.1	-13.9	4,234	6.17
MW103	29 Oct 2021	1.47	19.9	-102.4	4,730	5.39
MW103	28 Apr 2022	1.94	22.5	-18.1	5,174	5.32
MW103	22 Sep 2022	4.8	20.1	58.1	772	7.36
MW103	17 Apr 2023	2.54	22.6	41.8	4,887	5.33
MW103	25 Sep 2023	2.93	21	-220.7	5,047	5.45
MW104	31 Oct 2016	1.38	21.9	-0.5	4,304	5.94
MW104	18 Sep 2017	1.24	25	46.3	4,676	5.81
MW104	05 Mar 2019	1.97	22.6	84.2	4,592	5.94
MW104	29 Oct 2019	0.34	21.2	67.8	4,917	5.93
MW104	29 Oct 2019	0.34	21.2	67.8	4,917	5.93
MW104	12 May 2020	2.09	22.4	66.1	4,219	5.56
MW104	22 Oct 2020	1.09	21.1	40.5	4,850	5.56
MW104	29 Apr 2021	2.1	21.7	77.2	4,674	5.79
MW104	13 Aug 2021	1.56	21.4	28.1	5,121	5.81
MW104	20 Sep 2021	2.79	21.2	18.5	4,908	5.59
MW104	21 Apr 2022	2.01	22.2	104.8	4,970	5.51
MW104	26 Sep 2022	4.01	18.4	47.5	4,842	5.4
MW104	12 Apr 2023	2.32	20.9	77.9	3,175	5.48

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW104	**25 Sep 2023**	2.9	20	-2.3	4,815	5.23
MW105	**31 Oct 2016**	1.21	19.5	61.2	4,268	6.25
MW105	**05 Mar 2019**	1.96	22	50.1	4,345	6.54
MW105	**29 Oct 2019**	0.07	21.2	-7.1	5,230	6.02
MW105	**29 Oct 2019**	0.07	21.2	-7.1	5,230	6.02
MW105	**12 May 2020**	1.75	20.4	55	4,185	5.79
MW105	**22 Oct 2020**	3.08	20.7	53.6	4,254	5.7
MW105	**29 Apr 2021**	1.23	21	13.4	4,352	6.01
MW105	**13 Aug 2021**	1.96	19.8	-39.9	4,761	6.01
MW105	**20 Sep 2021**	4.32	20.1	-14.1	4,576	6.34
MW105	**21 Apr 2022**	1.22	20.3	58.8	4,531	6.04
MW105	**26 Sep 2022**	5.15	18.8	41.4	4,517	6.37
MW105	**12 Apr 2023**	0.94	20.8	81.6	4,158	6.06
MW105	**25 Sep 2023**	1.35	20.8	-1.5	4,711	5.58
MW107	**05 Mar 2019**	2.4	24.9	56.6	8,304	6.38
MW107	**29 Oct 2019**	0.15	23.6	9.9	10,372	5.76
MW107	**29 Oct 2019**	0.15	23.6	9.9	10,372	5.76
MW107	**12 May 2020**	1.87	22.9	55.7	8,946	5.44
MW107	**13 Oct 2020**	2.21	24.7	-134.1	8,498	6.51
MW107	**29 Apr 2021**	1.73	20.8	-9.1	7,884	5.5
MW107	**20 Sep 2021**	0.94	20.3	-102.9	8,588	7.26
MW107	**28 Apr 2022**	3.43	21.9	53.5	8,322	4.22
MW107	**26 Sep 2022**	2.26	23.2	68	8,531	6.09
MW107	**24 Apr 2023**	3.62	21	87.4	8,363	5.82
MW107	**25 Sep 2023**	2.37	21.7	-13.7	9,272	5.73
MW109	**31 Oct 2016**	1.39	24.7	113.8	9,351	4.47
MW109	**05 Mar 2019**	2.75	24.7	181.4	9,129	5.05
MW109	**29 Oct 2019**	1.01	26	19.9	10,357	6.11
MW109	**29 Oct 2019**	1.01	26	19.9	10,357	6.11
MW109	**12 May 2020**	2.51	21.9	68.5	9,138	4.62
MW109	**13 Oct 2020**	2.63	24.6	-4.5	9,510	5
MW109	**29 Apr 2021**	1.19	24.2	260.3	8,263	4.31
MW109	**20 Sep 2021**	1.36	20.8	-26.9	9,008	4.41
MW109	**28 Apr 2022**	0.94	22.6	15.1	9,087	4.74
MW109	**26 Sep 2022**	1.15	22.7	125.6	8,508	3.89
MW109	**24 Apr 2023**	0.7	21.4	-34.3	8,155	5.13
MW109	**25 Sep 2023**	3.45	20.4	-23.3	8,221	5.41
MW110	**31 Oct 2016**	1.19	25.6	43.9	6,369	5.91
MW110	**05 Mar 2019**	2.61	24.7	27.8	11,534	6.14
MW110	**29 Oct 2019**	0.1	23.9	43.2	12,673	5.56
MW110	**29 Oct 2019**	0.1	23.9	43.2	12,673	5.56
MW110	**12 May 2020**	30.4	20.9	65.5	8,380	5.67
MW110	**13 Oct 2020**	1.46	24.5	53.1	6,008	5.52
MW110	**29 Apr 2021**	2.6	23.3	94.9	7,362	5.5
MW110	**20 Sep 2021**	1.96	20.2	-72.1	2,847	5.86
MW110	**28 Apr 2022**	2.5	21.5	-21.1	3,120	5.9
MW110	**26 Sep 2022**	1.7	22.7	69.9	1,543	6.16
MW110	**24 Apr 2023**	1.99	20.9	52.7	3,839	5.85
MW110	**25 Sep 2023**	1.31	21	-1.1	4,799	5.54
MW112	**01 Nov 2016**	1.01	21.6	56.6	3,781	5.48
MW112	**28 Sep 2017**	1.91	17.5	97.6	3,973	5.26
MW112	**06 Mar 2019**	1.34	24	115.7	3,897	5.31
MW112	**23 Oct 2019**	2.49	24.1	245.9	4,137	5.09
MW112	**23 Oct 2019**	2.49	24.1	245.9	4,137	5.09
MW112	**04 May 2020**	8.27	23.3	72.8	3,453	5.16
MW112	**12 Oct 2020**	1.44	23.1	-114	4,048	5.54
MW112	**20 Apr 2021**	1.27	23.7	-10.4	4,288	6.37
MW112	**08 Sep 2021**	0.81	20.8	-70.4	4,219	6.01
MW112	**29 Oct 2021**	3.61	21.9	-5.9	4,127	6.05
MW112	**19 Apr 2022**	1.25	23.1	-171.7	3,860	5.39
MW112	**22 Sep 2022**	0.74	22.1	104.5	3,898	4.97
MW112	**19 Nov 2022**	2.29	21.9	147.4	4,055	5.19
MW112	**12 Apr 2023**	0.72	22.9	0	4,011	5.19
MW112	**13 Sep 2023**	1.94	19.6	-56.4	3,544	5.52
MW113	**01 Nov 2016**	2.12	23.2	-45.7	2,974	6.89
MW113	**28 Sep 2017**	1.78	20	-61	2,228	6.27
MW113	**23 Oct 2019**	0.29	23.1	-14.6	2,452	5.21
MW113	**23 Oct 2019**	0.29	23.1	-14.6	2,452	5.21
MW113	**04 May 2020**	8.92	23	52.9	1,888	5.93
MW113	**12 Oct 2020**	1.37	22.5	-95.7	2,911	5.32
MW113	**20 Apr 2021**	2.17	23.3	-60.5	949	6.28
MW113	**20 Sep 2021**	1.17	22.7	-8.1	2,951	6.11
MW113	**29 Oct 2021**	1.78	21.6	-120.4	2,042	5.87
MW113	**19 Apr 2022**	0.9	23.7	-132.1	1,567	6.21
MW113	**22 Sep 2022**	0.72	21.3	77.8	2,020	5.76
MW113	**20 Nov 2022**	1.57	23.3	-51.5	2,497	6.56
MW113	**12 Apr 2023**	1.99	24	-79.3	1,663	6.04
MW113	**13 Sep 2023**	3.45	18.1	-49.5	1,741	6.1
MW114	**07 Mar 2019**	2.15	23.2	120	917	5.16
MW114	**07 Nov 2019**	3.14	27.4	-23.9	1,046	6.13
MW114	**07 Nov 2019**	3.14	27.4	-23.9	1,046	6.13
MW114	**06 May 2020**	3.94	20.5	72.9	1,079	5.26
MW114	**13 Oct 2020**	4.45	23.2	161.3	964	5.06
MW114	**19 Apr 2021**	1.67	24.9	138.6	1,039	5.48
MW114	**10 Sep 2021**	2.19	19.1	-30.3	958	5.51
MW114	**19 Apr 2022**	2.87	23.3	-152.6	1,753	7.2
MW114	**22 Sep 2022**	2.86	19.3	99.4	964	5.51
MW114	**11 Apr 2023**			29.6	967	5.48
MW114	**14 Sep 2023**	4.21	20.2	-1.3	997	5.73
MW115	**18 Sep 2017**	1.21	22.4	155.7	1,241	5.35
MW115	**06 Mar 2019**	0.56	24.8	-50.5	1,872	5.56
MW115	**30 Oct 2019**	1	20.1	-87.1	1,569	5.26
MW115	**30 Oct 2019**	1	20.1	-87.1	1,569	5.26
MW115	**13 May 2020**	1.79	23.8	-6	2,131	6.32
MW115	**12 Oct 2020**	1.34	23.1	114.2	1,900	4.92

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW115	**19 Apr 2021**	1.43	23	54	1,958	5.64
MW115	**09 Sep 2021**	1.02	19.1	100.9	1,945	5.63
MW115	**20 Apr 2022**	0.5	27.3	-2.6	2,016	5.44
MW115	**22 Sep 2022**	0.87	20.1	93.8	1,916	5.54
MW115	**12 Apr 2023**	1.33	22.8	-180.6	1,933	5.6
MW115	**13 Sep 2023**	1.99	19.7	-39.2	1,682	6.64
MW116	**07 Mar 2019**	1.29	21.5	-18.9	4,501	5.82
MW116	**29 Oct 2019**	0.79	25.4	-89.9	5,018	5.67
MW116	**29 Oct 2019**	0.79	25.4	-89.9	5,018	5.67
MW116	**04 May 2020**	14.45	20.5	-23.5	4,114	5.13
MW116	**12 Oct 2020**	3.21	19.6	-60.7	4,619	4.79
MW116	**19 Apr 2021**	1.17	22	-25.6	4,680	5.39
MW116	**08 Sep 2021**	0.32	19.6	-152.1	5,022	5.81
MW116	**19 Apr 2022**	0.8	22.5	121.5	4,339	5.45
MW116	**22 Sep 2022**	0.71	19.3	100.8	4,949	5.02
MW116	**12 Apr 2023**	0.66	21.3	-60.8	4,979	5.36
MW116	**13 Sep 2023**	1.44	19.3	-78.5	4,532	5.23
MW117	**07 Dec 2016**	2.12	21.7	-207	3,794	5.69
MW117	**18 Sep 2017**	1.01	24	-13.3	4,535	5.71
MW117	**06 Mar 2019**	4.64	23.4	86.1	4,484	6.04
MW117	**29 Oct 2019**	1.07	26.1	22.5	4,758	5.8
MW117	**29 Oct 2019**	1.07	26.1	22.5	4,758	5.8
MW117	**29 Oct 2019**	1.07	26.1	22.5	4,758	5.8
MW117	**04 May 2020**	15.2	21.9	84	4,299	5.06
MW117	**12 Oct 2020**	1.72	23.1	-29	4,656	5.52
MW117	**07 Sep 2021**	2.57	23.1	114.7	4,799	5.58
MW117	**29 Oct 2021**	1.08	21.4	-11.1	4,527	4.47
MW117	**19 Apr 2022**	3.56	21.3	113.1	4,659	5.18
MW117	**19 Sep 2022**	1.97	19.3	0.4	4,266	5.16
MW117	**17 Apr 2023**	2.59	22.8	69.7	4,542	4.55
MW117	**11 Sep 2023**	9.9	21.7	-75	4,335	5.03
MW118	**05 Mar 2019**	2.86	23.5	94.2	4,073	6.03
MW118	**30 Oct 2019**	0.78	21.6	178.1	4,067	4.93
MW118	**30 Oct 2019**	0.78	21.6	178.1	4,067	4.93
MW118	**04 May 2020**	3.72	21.1	110.2	3,327	5.06
MW118	**12 Oct 2020**	3.11	24.1	48.7	3,982	5.41
MW118	**19 Apr 2021**	1.32	21	56.8	4,244	5.56
MW118	**13 Aug 2021**	2.61	20.9	83.7	4,248	5.99
MW118	**07 Sep 2021**	2.68	22.7	118.3	4,229	5.46
MW118	**19 Apr 2022**	1.07	22.1	136.2	5,071	5.05
MW118	**19 Sep 2022**	1.18	19.7	12.6	4,001	5.43
MW118	**12 Apr 2023**	1.01	22.1	94.9	4,486	5.05
MW118	**11 Sep 2023**	1.71	23.4	-73.4	3,945	5.05
MW119	**05 Mar 2019**	1.47	24.1	75.2	1,470	6.95
MW119	**29 Oct 2019**	0.99	22.5	120.1	1,320	5.28
MW119	**29 Oct 2019**	0.99	22.5	120.1	1,320	5.28
MW119	**04 May 2020**	3.16	22.6	74.7	1,608	4.92
MW119	**12 Oct 2020**	1.55	23.6	41.6	1,612	5.03
MW119	**19 Apr 2021**	1.06	22.9	138	1,478	5.38
MW119	**07 Sep 2021**	3.34	20.9	177.7	1,532	5.59
MW119	**19 Apr 2022**	0.43	23.3	167.9	1,496	5.16
MW119	**19 Sep 2022**	1.62	20.6	-34.1	1,416	5.67
MW119	**12 Apr 2023**	1.56	22.7	71.6	1,413	5.3
MW119	**11 Sep 2023**	1.8	23.3	-113.8	1,411	5.07
MW120	**18 Sep 2017**	1.36	22.4	14.6	6,062	4.69
MW120	**06 Mar 2019**	1.2	24.7	137.2	6,527	5.49
MW120	**29 Oct 2019**	0.95	21.4	81	5,665	4.63
MW120	**29 Oct 2019**	0.95	21.4	81	5,665	4.63
MW120	**05 May 2020**	4.23	23.4	82.7	4,767	4.12
MW120	**12 Oct 2020**	7.26	22.2	75.3	6,897	4.97
MW120	**19 Apr 2021**	1.61	23.2	5.2	7,002	5.82
MW120	**08 Sep 2021**	1.67	25.7	157.1	4,511	5.12
MW120	**20 Apr 2022**	3.36	21.4	156.9	6,696	5.09
MW120	**20 Sep 2022**	0.74	17.8	27.9	6,702	5.15
MW120	**12 Apr 2023**	1.93	25.2	74.4	6,768	5.43
MW120	**11 Sep 2023**	1.49	21.2	-35.9	6,875	4.95
MW121	**05 Mar 2019**	2.1	23.5	95.9	5,374	5.88
MW121	**29 Oct 2019**	0.75	21.4	137.6	4,618	4.97
MW121	**29 Oct 2019**	0.75	21.4	137.6	4,618	4.97
MW121	**03 Jun 2020**	1.88	22.7	33	5,015	4.58
MW121	**12 Oct 2020**	2.51	25.5	104.1	5,267	5.26
MW121	**19 Apr 2021**	1.84	22.9	120.1	5,124	5.27
MW121	**08 Sep 2021**	1.33	23.7	223.2	5,254	5.16
MW121	**19 Apr 2022**	1.5	32.3	127	4,083	5.39
MW121	**20 Sep 2022**	4.02	19.7	-70.9	4,574	6.26
MW121	**12 Apr 2023**	1.78	22.3	62.3	4,645	5.59
MW121	**11 Sep 2023**	1.28	22	-73.2	4,388	5.36
MW122D	**07 Mar 2019**	0.52	24	-77.8	1,592.5	6.97
MW122D	**30 Oct 2019**	0.57	21.9	-44.5	1,814	6.55
MW122D	**30 Oct 2019**	0.57	21.9	-44.5	1,814	6.55
MW122D	**13 May 2020**	1.22	22.1	36.8	2,808	6.97
MW122D	**12 Oct 2020**	0.95	22	-55.2	2,463	6.67
MW122D	**19 Apr 2021**	1.08	23.4	-131.2	2,533	7.09
MW122D	**09 Sep 2021**	1.23	17.6	-239.5	2,098	7.28
MW122D	**20 Apr 2022**	0.63	26.2	-87.7	2,622	7.13
MW122D	**20 Sep 2022**	1.77	20.7	-177.8	2,386	6.97
MW122D	**12 Apr 2023**	0.47	25.3	-31.5	1,924	7.38
MW122D	**13 Sep 2023**	19.1	18.4	-169.4	1,598	7.47
MW122S	**07 Mar 2019**	0.72	25	-62	1,675	6.24
MW122S	**30 Oct 2019**	1.03	21.3	-62.7	2,384	5.35
MW122S	**30 Oct 2019**	1.03	21.3	-62.7	2,384	5.35
MW122S	**13 May 2020**	1.41	23.2		3,675	5.66
MW122S	**12 Oct 2020**	0.69	22.2	9.7	2,811	5.27
MW122S	**19 Apr 2021**	1.34	24.8	-50.4	2,833	6.51
MW122S	**09 Sep 2021**	1.09	18.3	-55.5	2,830	6.28
MW122S	**20 Apr 2022**	0.8	24.7	-21.6	3,499	5.73

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW122S	**20 Sep 2022**	2.07	19.8	-130.8	1,435	6.82
MW122S	**12 Apr 2023**	1.54	25.1	35.7	2,622	6.05
MW122S	**13 Sep 2023**	2.03	17.5	66.4	1,530	5.99
MW123D	**07 Mar 2019**	0.34	23.7	-68.2	4,583	7
MW123D	**30 Oct 2019**	0.06	21.6	-325.7	4,640	6.72
MW123D	**30 Oct 2019**	0.06	21.6	-325.7	4,640	6.72
MW123D	**13 May 2020**	0.58	21.8	9.6	4,167	6.88
MW123D	**22 Oct 2020**	5.29	21	-38.5	3,640	6.81
MW123D	**19 Apr 2021**	0.94	22.3	-203.8	3,911	6.78
MW123D	**08 Sep 2021**	0.05	24.2	-327.4	4,604	6.99
MW123D	**20 Apr 2022**	0.08	20.9	-263.3	4,661	6.96
MW123D	**20 Sep 2022**	0.2	20.3	-311.3	4,397	6.88
MW123D	**12 Apr 2023**	0.7	23	-235.9	3,633	7
MW123D	**13 Sep 2023**	1.09	18	-37.2	1,397	7.44
MW123S	**07 Mar 2019**	1.63	23.5	-94.7	5,331	6.31
MW123S	**30 Oct 2019**	0.09	21.3	-250.7	6,507	5.87
MW123S	**30 Oct 2019**	0.09	21.3	-250.7	6,507	5.87
MW123S	**13 May 2020**	1.48	21.8	61	4,763	5.94
MW123S	**22 Oct 2020**	1.26	21.5	-5.5	5,128	5.8
MW123S	**19 Apr 2021**	1.76	23.5	-108.6	5,193	6.3
MW123S	**08 Sep 2021**	0.97	22.6	-108	4,210	6.24
MW123S	**20 Apr 2022**	5.22	22.6	-18.7	5,240	4.89
MW123S	**20 Sep 2022**	1.55	19.9	-208.8	4,843	6.48
MW123S	**12 Apr 2023**	1.19	23.8	-47.3	5,923	6.07
MW123S	**13 Sep 2023**	1.02	18.4	-86.7	4,464	6.04
MW124D	**07 Mar 2019**	0.5	22.4	-78.8	2,242	6.43
MW124D	**29 Oct 2019**	0.35	22.6	-138.2	3,100	6.28
MW124D	**29 Oct 2019**	0.35	22.6	-138.2	3,100	6.28
MW124D	**05 May 2020**	3.91	22.1	59	1,896	6.1
MW124D	**12 Oct 2020**	0.7	22.3	-54.4	3,297	6.85
MW124D	**20 Apr 2021**	0.53	21.7	-10.1	2,519	6.48
MW124D	**09 Sep 2021**	1.85	20	-188.4	2,990	6.92
MW124D	**21 Apr 2022**	1.17	21	-14.3	2,503	6.54
MW124D	**20 Sep 2022**	1.09	20.6	-38	2,854	6.6
MW124D	**12 Apr 2023**	0.83	21.3	75	2,278	6.51
MW124D	**19 Sep 2023**	3.17	19	-12.4	2,641	6.76
MW124S	**07 Mar 2019**	0.97	23.7	-41.4	5,429	6.27
MW124S	**29 Oct 2019**	0.88	20.9	86.5	4,935	5.43
MW124S	**29 Oct 2019**	0.88	20.9	86.5	4,935	5.43
MW124S	**05 May 2020**	10.14	22.6	82.1	4,275	6.15
MW124S	**12 Oct 2020**	2.29	22.6	89	5,703	5.9
MW124S	**20 Apr 2021**	1.28	23.8	43.1	5,524	6.23
MW124S	**09 Sep 2021**	1.28	17	-88.2	5,533	6.24
MW124S	**21 Apr 2022**	2.41	20.2	-31.6	6,288	6.31
MW124S	**20 Sep 2022**	7.64	18	3.2	4,627	6.09
MW124S	**12 Apr 2023**	1.52	21.8	82.9	5,674	6.18
MW124S	**19 Sep 2023**	2.73	19.5	-5.6	5,544	6.18
MW125D	**10 Oct 2017**	0.11	20.5	-160.7	8,130	7.43
MW125D	**11 Mar 2019**	0.68	22.7	-105	9,396	7.11
MW125D	**19 Nov 2019**	0.59	25.9	-44.1	8,146	6.33
MW125D	**19 Nov 2019**	0.59	25.9	-44.1	8,146	6.33
MW125D	**13 May 2020**	1.18	22.3	-166	8,543	6.66
MW125D	**14 Oct 2020**	0.97	21.9	-75.2	9,377	6.59
MW125D	**21 Apr 2021**	1.47	23.6	-63	7,608	6.93
MW125D	**06 Sep 2021**	3.12	17.9	-121.6	7,432	6.9
MW125D	**20 Apr 2022**	0.48	21.5	-170.1	9,198	6.7
MW125D	**21 Sep 2022**	2.59	20.6	-71.8	6,695	6.85
MW125D	**13 Apr 2023**	0.97	24.8	12.2	7,624	6.56
MW125D	**14 Sep 2023**	0.99	20.3	-75.4	8,088	6.73
MW125S	**10 Oct 2017**	1.42	20.3	63.2	7,815	7.44
MW125S	**11 Mar 2019**	1.29	22.4	-108	8,955	7.25
MW125S	**19 Nov 2019**	1.08	23.6	-110.9	8,403	6.48
MW125S	**19 Nov 2019**	1.08	23.6	-110.9	8,403	6.48
MW125S	**13 May 2020**	2.25	22.8	-57	9,299	7.04
MW125S	**14 Oct 2020**	14.08	20.6	1.1	10,005	6.63
MW125S	**21 Apr 2021**	2.05	23.9	-49.4	9,961	7.1
MW125S	**06 Sep 2021**	2.14	20.1	-126.5	11,491	7
MW125S	**20 Apr 2022**	1.51	21.6	-78.3	9,049	7.05
MW125S	**21 Sep 2022**	4.48	18.9	-40.8	9,433	6.67
MW125S	**13 Apr 2023**	3.52	24.1	25	9,556	6.99
MW125S	**14 Sep 2023**	1.73	20	-32.7	10,154	6.99
MW126	**10 Oct 2017**	0.27	19.6	-170.6	3,464	7.02
MW126	**11 Mar 2019**	0.61	23.1	-188.2	3,786	7.44
MW126	**19 Nov 2019**	0.56	25.9	-193.4	3,797	6.33
MW126	**19 Nov 2019**	0.56	25.9	-193.4	3,797	6.33
MW126	**13 May 2020**	1.79	21.6		3,708	6.78
MW126	**14 Oct 2020**	1.05	21.4	-251.9	4,302	6.74
MW126	**21 Apr 2021**	0.74	24	-217.9	4,147	7.04
MW126	**06 Sep 2021**	2.38	18.8	-205.4	3,759	7.43
MW126	**20 Apr 2022**	5.47	21.8	-285.9	2,121	6.79
MW126	**23 Sep 2022**	1.55	20.6	-283.9	3,499	6.67
MW126	**13 Apr 2023**	1.75	25	-172.7	3,319	7.01
MW126	**14 Sep 2023**	1.9	19.7	-51.2	1,687	6.79
MW127	**10 Oct 2017**	2.17	19.2	-120.9	715	7.62
MW127	**11 Mar 2019**	1.32	25.9	89.9	867	6.61
MW127	**19 Nov 2019**	1.54	22.8	-57.7	738	7.52
MW127	**19 Nov 2019**	1.54	22.8	-57.7	738	7.52
MW127	**13 May 2020**	1.02	25.5	-162.2	883	6.81
MW127	**14 Oct 2020**	2.15	23.1	-207.2	912	7.34
MW127	**21 Apr 2021**	21.7	24.3	35.7	1.81	7.26
MW127	**09 Sep 2021**	3.36	18.4	-236.8	875	7.04
MW127	**20 Apr 2022**	1.19	22.1	247.8	1,130	7.34
MW127	**23 Sep 2022**	2.74	21.7	-232.9	829	7.08
MW127	**13 Apr 2023**	5.16	23.7	-194.9	980	7.44
MW127	**15 Sep 2023**	3.56	18.7	32.6	714	7.35

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW128D	**10 Oct 2017**	0.54	19.4	-48.2	771	9.47
MW128D	**11 Mar 2019**	0.69	23.2	-131.6	822	10.19
MW128D	**19 Nov 2019**		24.8	-42.9	547	8.58
MW128D	**19 Nov 2019**		24.8	-42.9	547	8.58
MW128D	**13 May 2020**	1.55	22.6	21.7	516	8.36
MW128D	**14 Oct 2020**	2.32	19.5	-210.5	641	8.17
MW128D	**21 Apr 2021**	1.1	24	-151.5	687	8.32
MW128D	**07 Sep 2021**	1.79	18.7	-148.6	681	8.27
MW128D	**20 Apr 2022**	0.64	21.6	-191.3	623	9.02
MW128D	**21 Sep 2022**	2.42	20.5	-260.7	678	7.41
MW128D	**12 Apr 2023**	1.37	23.3	-155.3	675	8.05
MW128D	**15 Sep 2023**	0.7	17.9	26.4	586	9.44
MW128S	**10 Oct 2017**	1.58	19.9	34.2	553	8.56
MW128S	**11 Mar 2019**	1.2	21.7	-95.1	571	8.8
MW128S	**19 Nov 2019**	0.53	24.9	-76.5	715	7.1
MW128S	**19 Nov 2019**	0.53	24.9	-76.5	715	7.1
MW128S	**13 May 2020**	1.4	21.3	36	639	7.73
MW128S	**14 Oct 2020**	1.15	21	-150	626	7.65
MW128S	**21 Apr 2021**	1.11	23.9	-95	901	7.14
MW128S	**07 Sep 2021**	1.13	18.7	-118.3	628	7.7
MW128S	**20 Apr 2022**	1.11	22.3	-292	606	7.66
MW128S	**21 Sep 2022**	3.25	19.4	-108.7	585	6.93
MW128S	**12 Apr 2023**	1.44	22.7	-63.2	576	7.75
MW128S	**15 Sep 2023**	1.15	18.3	19.8	295.3	7.55
MW129D	**10 Oct 2017**	0.73	19.2	-133.5	443.8	7.88
MW129D	**11 Mar 2019**	1.21	24.7	-22.7	608	7.79
MW129D	**19 Nov 2019**		23.5	1.5	472.8	7.19
MW129D	**19 Nov 2019**		23.5	1.5	472.8	7.19
MW129D	**13 May 2020**	1.25	22	48.8	473.9	7.53
MW129D	**21 Apr 2021**	1.76	24	11.1	792	7.99
MW129D	**09 Sep 2021**	1.09	19.3	-97.4	874	7.42
MW129D	**20 Apr 2022**	1.91	23.1	-190	1,259	7.56
MW129D	**23 Sep 2022**	3.25	19.3	-153.2	1,300	7.26
MW129D	**12 Apr 2023**	0.61	23.4	-63.9	1,583	7.31
MW129D	**15 Sep 2023**	1.1	19.5	59.6	1,216	7.28
MW129S	**10 Oct 2017**	1.07	19.7	-175.4	956	7.77
MW129S	**11 Mar 2019**	1.79	22.8	1.8	845	7.68
MW129S	**19 Nov 2019**		21.4	-78	97	7
MW129S	**19 Nov 2019**		21.4	-78	97	7
MW129S	**13 May 2020**	7.49	23.3	53.5	509	7.51
MW129S	**21 Apr 2021**	3.39	24.5	39.3	1,352	7.52
MW129S	**09 Sep 2021**	1.7	19	-137.7	1,201	7.35
MW129S	**20 Apr 2022**	6.5	22.8	-263.4	1,199	7.47
MW129S	**23 Sep 2022**	1.53	19.2	-107.7	1,165	7.22
MW129S	**12 Apr 2023**	0.95	22.9	-64.4	1,521	7.47
MW129S	**15 Sep 2023**	1.84	19.3	24.9	1,100	7.47
MW130D	**11 Mar 2019**	0.73	23.7	-19.7	795	6.33
MW130D	**19 Nov 2019**	0	22.8	27.5	680	6.98
MW130D	**19 Nov 2019**	0	22.8	27.5	680	6.98
MW130D	**13 May 2020**	1.55	24.8	-216.8	834	7.25
MW130D	**14 Oct 2020**	1.73	20.7	-34.5	800	7.25
MW130D	**21 Apr 2021**	0.58	22.8	-123.9	825	7.4
MW130D	**07 Sep 2021**	1.03	19.8	-288.8	817	8
MW130D	**20 Apr 2022**	0.89	21.4	-234.8	741	7.86
MW130D	**23 Sep 2022**	1.95	21.1	-196.2	767	7.36
MW130D	**12 Apr 2023**	0.51	22.6	-79.3	703	7.63
MW130D	**15 Sep 2023**	0.72	19.6	-151.3	694	7.55
MW130S	**11 Mar 2019**	0.9	22.1	-122.2	1,138	6.95
MW130S	**19 Nov 2019**	0	28.2	31.9	1,186	6.91
MW130S	**19 Nov 2019**	0	28.2	31.9	1,186	6.91
MW130S	**13 May 2020**	2.03	23.4	52	1,454	7.4
MW130S	**14 Oct 2020**	1.12	20.5	-13	1,222	7.04
MW130S	**21 Apr 2021**	13.2	23.8	-103.8	1.08	7.63
MW130S	**07 Sep 2021**	0.2	17.1	-280.5	1,267	7.46
MW130S	**20 Apr 2022**	1.51	22.2	-214.3	1,221	7.55
MW130S	**23 Sep 2022**	2.15	19.9	-1,709	1,287	7.33
MW130S	**12 Apr 2023**	0.6	23.2	-41.6	1,253	7.46
MW130S	**15 Sep 2023**	1.13	19.4	-25.9	1,057	7.43
MW132D	**07 Mar 2019**	1.08	24.7	-94.3	3,512	5.71
MW132D	**29 Oct 2019**	0.47	22.4	-113.9	2,245	6.88
MW132D	**29 Oct 2019**	0.47	22.4	-113.9	2,245	6.88
MW132D	**12 May 2020**	2.85	22.4	11.5	2,269	7.12
MW132D	**13 Oct 2020**	1.8	25.2	-50.1	3,913	5.13
MW132D	**29 Apr 2021**	1.49	21.6	44	3,707	5.27
MW132D	**20 Sep 2021**	1.31	18.5	-154	2,353	7.03
MW132D	**28 Apr 2022**	1.6	20	-224.7	2,343	7.49
MW132D	**26 Sep 2022**	3.45	20.4	64	2,232	7.4
MW132D	**24 Apr 2023**	3.45	20.5	-152.8	2,182	7.72
MW132D	**25 Sep 2023**	1.29	21.9	-189.3	2,246	7.4
MW132S	**07 Mar 2019**	2.12	23	101.2	5,369	5.4
MW132S	**29 Oct 2019**	0.01	23.2	136.1	6,793	4.93
MW132S	**29 Oct 2019**	0.01	23.2	136.1	6,793	4.93
MW132S	**12 May 2020**	6	21.8	57	4,484	5.81
MW132S	**29 Apr 2021**	0.87	22.6	138	5,326	5.03
MW132S	**20 Sep 2021**	2.15	19.2	-42.3	5,569	5.95
MW132S	**28 Apr 2022**	1.25	21.1	47.2	5,428	5.23
MW132S	**26 Sep 2022**	1.46	20.6	73.3	5,189	5.25
MW132S	**24 Apr 2023**	1.7	21.1	-14.5	5,065	5.15
MW132S	**25 Sep 2023**	2.4	22.7	-49.9	5,483	5.47
MW134D	**07 Mar 2019**	0.47	23.1	-68.2	1,426	6.4
MW134D	**29 Oct 2019**	0.14	22.6	-37.6	1,042	6.12
MW134D	**29 Oct 2019**	0.14	22.6	-37.6	1,042	6.12
MW134D	**12 May 2020**	1.04	22.5	40.8	1,409	6.12
MW134D	**13 Oct 2020**	1.39	25.7	-105.6	1,312	6.01
MW134D	**29 Apr 2021**	1.85	21.3	-32.9	1,150	6.24

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW134D	**20 Sep 2021**	0.83	18.9	-194.9	1,056	6.54
MW134D	**28 Apr 2022**	0.89	20.1	-133.6	1,027	6.32
MW134D	**26 Sep 2022**	0.89	20.4	62.8	1,027	6.09
MW134D	**24 Apr 2023**	3.23	20.4	-119.3	957	6.31
MW134D	**25 Sep 2023**	2.18	22.2	96.3	1,310	6.16
MW134S	**07 Mar 2019**	2.27	23.1	26.5	5,508	5.71
MW134S	**29 Oct 2019**	0.04	22.9	121.4	6,892	5
MW134S	**29 Oct 2019**	0.04	22.9	121.4	6,892	5
MW134S	**12 May 2020**	0.88	23.9	55.5	5,151	5.23
MW134S	**13 Oct 2020**	1.7	24.7	4.83	6,508	4.82
MW134S	**29 Apr 2021**	1.5	22.4	112.5	2,965	4.84
MW134S	**20 Sep 2021**	0.61	20.6	-163.4	6,425	5.84
MW134S	**28 Apr 2022**	0.7	20.4	520	6,399	5.2
MW134S	**26 Sep 2022**	0.8	20.8	68.5	6,346	5.24
MW134S	**24 Apr 2023**	1.33	21.1	2.8	5,900	5.11
MW134S	**25 Sep 2023**	1.43	22.6	-14.1	6,418	5.06
MW136	**08 Mar 2019**	1.14	22.7	-211.2	1,227	8.14
MW136	**22 Oct 2019**	0.06	20.7	188.6	1,296	6.92
MW136	**22 Oct 2019**	0.06	20.7	188.6	1,296	6.92
MW136	**06 May 2020**	2.7	20.4	0.6	1,361	6.84
MW136	**14 Oct 2020**	1.69	22.5	-134.5	1,205	6.89
MW136	**21 Apr 2021**	1.39	21.8	-186.5	1,540	7.1
MW136	**06 Sep 2021**	1.57	20.4	-217.8	1,489	7.36
MW136	**19 Apr 2022**	1.11	21.7	-265	1,636	7.41
MW136	**21 Sep 2022**	0.22	19.5	-106.8	1,399	7.11
MW136	**11 Apr 2023**		24.9	-210.1	814	7.17
MW136	**14 Sep 2023**	0.57	19.7	-196.4	1,256	7.19
MW137	**08 Mar 2019**	1.62	23.2	-126	6,754	7
MW137	**22 Oct 2019**	0.1	18.1	212	7,136	7.19
MW137	**22 Oct 2019**	0.1	18.1	212	7,136	7.19
MW137	**06 May 2020**	19	19.7	-253	3,841	6.95
MW137	**14 Oct 2020**	0.79	17.7	-138.3	8,595	6.89
MW137	**21 Apr 2021**	0.78	21.7	-175.8	4,691	6.74
MW137	**06 Sep 2021**	2.75	16.6	-204.4	4,160	6.98
MW137	**19 Apr 2022**	9.83	22.6	-246.4	4,304	7.32
MW137	**21 Sep 2022**	0.25	16.4	-74.5	4,874	6.81
MW137	**11 Apr 2023**			-205.5	7,024	7.29
MW137	**14 Sep 2023**	2.3	18.4	-169.8	5,390	7.28
MW138	**05 Oct 2017**	1.26	21.2	-83.5	3,683	7.06
MW138	**05 Mar 2019**	2.06	23.2	-66.4	3,928	7.05
MW138	**29 Oct 2019**	0.68	22.4	-61.5	3,561	6.31
MW138	**29 Oct 2019**	0.68	22.4	-61.5	3,561	6.31
MW138	**05 May 2020**	3.45	22.1	50.4	3,161	6.75
MW138	**12 Oct 2020**	0.73	24	-72.2	4,185	6.69
MW138	**19 Apr 2021**	1.09	24.9	-123.2	4,142	6.82
MW138	**08 Sep 2021**	0.3	21.6	-96.2	4,527	6.53
MW138	**20 Apr 2022**	1.11	19.6	-107.7	4,506	6.89
MW138	**20 Sep 2022**	1.18	19	24.2	3,661	6.84
MW138	**12 Apr 2023**		24.1	-13.5	3,854	7
MW138	**11 Sep 2023**	0.65	21.5	-73.2	3,722	6.93
MW139	**05 Oct 2017**	1.61	19.9	10.8	5,995	5.8
MW139	**05 Mar 2019**	1.94	21.8	57.4	2,557	5.68
MW139	**30 Oct 2019**	0.59	21.8	18.9	6,199	5.8
MW139	**30 Oct 2019**	0.59	21.8	18.9	6,199	5.8
MW139	**05 May 2020**	4.26	19.5	77.9	2,637	4.94
MW139	**13 Oct 2020**	3.31	22.6	177.3	5,232	4.97
MW139	**19 Apr 2021**	1.64	22.2	150.3	2,697	5.07
MW139	**07 Sep 2021**	2.95	20.9	165	4,555	5.29
MW139	**19 Apr 2022**	0.95	21.2	29	2,770	5.04
MW139	**20 Sep 2022**	1.42	18.3	35.3	3,919	5.24
MW139	**12 Apr 2023**	0.97	22.2	97.4	2,584	5.1
MW139	**11 Sep 2023**	2.23	22.7	-40.3	2,391	4.85
MW140D	**07 Mar 2019**	0.35	22.6	-117.9	3,710	7.31
MW140D	**29 Oct 2019**	0.51	21.8	-107.8	3,090	6.92
MW140D	**29 Oct 2019**	0.51	21.8	-107.8	3,090	6.92
MW140D	**05 May 2020**	9.45	20.3	-69	2,449	8.84
MW140D	**12 Oct 2020**	1.1	21.7	-328.7	2,513	8.98
MW140D	**19 Apr 2021**	1.04	22.3	-280.2	2,572	7.94
MW140D	**08 Sep 2021**	0.36	21	-258.8	2,600	7.89
MW140D	**19 Apr 2022**	0.69	22.9	-126.3	2,600	7.75
MW140D	**20 Sep 2022**	0.32	17.3	-15	2,290	7.24
MW140D	**12 Apr 2023**	1.13	20.2	16.6	2,458	7.72
MW140D	**11 Sep 2023**	0.82	21.1	-127.7	2,406	7.68
MW140S	**07 Mar 2019**	1.13	21.1	-7.2	2,979	6.06
MW140S	**29 Oct 2019**	1	21.4	46.3	2,779	5.22
MW140S	**29 Oct 2019**	1	21.4	46.3	2,779	5.22
MW140S	**05 May 2020**	5.46	20.5	57.1	3,069	5.31
MW140S	**12 Oct 2020**	1.54	23.3	0.8	3,363	4.91
MW140S	**19 Apr 2021**	0.68	21.6	-65.3	3,328	6.18
MW140S	**08 Sep 2021**	2.61	19.5	96.7	3,286	5.5
MW140S	**19 Apr 2022**	3.14	22.6	65.3	3,274	6.05
MW140S	**20 Sep 2022**	0.5	18.3	7.9	2,962	4.95
MW140S	**12 Apr 2023**	0.45	20.5	75.5	3,003	5.02
MW140S	**11 Sep 2023**	0.9	21.4	-74	2,907	4.93
MW146	**10 Oct 2017**	2.83	21.8	94.3	1,906	7.39
MW146	**11 Oct 2017**	1.5	19.5	-175.5	2,496	6.98
MW146	**07 Mar 2019**	1.03	23.1	217.9	5,536	4.16
MW146	**23 Oct 2019**		28.7	299.7	5,817	4.07
MW146	**23 Oct 2019**		28.7	299.7	5,817	4.07
MW146	**04 May 2020**	5.65	22.5	93.6	4,365	3.65
MW146	**12 Oct 2020**	1.66	21	247.7	5,372	3.98
MW146	**19 Apr 2021**	1.08	23.1	347.1	5,142	3.84
MW146	**08 Sep 2021**	1.13	23.5	-67.2	2,096	6.22
MW146	**19 Apr 2022**	0.81	23.4	-13	4,104	5.06
MW146	**22 Sep 2022**	1.3	20.6	92.3	3,509	5.64

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
MW146	**12 Apr 2023**	1.06	22.2	10	3,820	5.08
MW146	**13 Sep 2023**	4.02	19.2	12.1	3,486	5.29
MW149	**06 Mar 2019**	0.13	22.5	43.2	2,476	6.43
MW149	**29 Oct 2019**		26.2	98.2	4,905	5.18
MW149	**29 Oct 2019**		26.2	98.2	4,905	5.18
MW149	**04 May 2020**	5.03	21.7	85.6	3,980	5.15
MW149	**12 Oct 2020**	1.57	23.3	115.4	4,850	4.96
MW149	**20 Apr 2021**	1.63	22.9	103.9	4,682	5.83
MW149	**08 Sep 2021**	3.04	21.7	-75.3	2,702	7.06
MW149	**19 Apr 2022**	1.28	20.3	125.6	4,726	5.1
MW149	**19 Sep 2022**	1.38	18	-88.4	4,318	6.74
MW149	**17 Apr 2023**	1.39	22.7	46.2	4,520	5.59
MW149	**13 Sep 2023**	3.6	18.4	-50	3,985	6.14
MW150	**10 Oct 2017**	2.23	23.5	-48.7	3,213	12.32
MW150	**07 Mar 2019**	1.7	22.6	23.6	1,882	8.62
MW150	**29 Oct 2019**	2.32	24.2	-72.7	1,934	8.06
MW150	**29 Oct 2019**	2.32	24.2	-72.7	1,934	8.06
MW150	**04 May 2020**	5.91	22	73.5	2,235	6.66
MW150	**12 Oct 2020**	3.64	21.6	9	2,207	6.9
MW150	**20 Apr 2021**	1.16	23.7	28.7	2,280	7.28
MW150	**07 Sep 2021**	1.76	24.3	200.6	2,409	6.76
MW150	**20 Apr 2022**	1.48	22.4	88.9	2,212	6.62
MW150	**19 Sep 2022**	2.95	19.1	-55.1	2,029	6.71
MW150	**17 Apr 2023**	1.12	23.2	100.6	2,310	6.5
MW150	**13 Sep 2023**	2.01	19.4	26	2,014	6.56
MW155S	**22 Sep 2020**	1.85	22.4	141.1	6,025	5.52
MW155S	**17 Feb 2021**	0.24	23.2	-124.3	6,194	5.35
MW155S	**29 Apr 2021**	1.9	23.5	165.6	5,791	5.55
MW155S	**20 Sep 2021**	1.35	21	-63.6	6,065	6
MW155S	**21 Oct 2021**	1.2	22.2	150.3	6,535	5.54
MW155S	**28 Apr 2022**	1.9	21.6	5.24	7,142	5.24
MW155S	**22 Sep 2022**	1.64	21.7	86	6,463	5.15
MW155S	**20 Nov 2022**	2.49	23.7	116.9	6,084	5.37
MW155S	**24 Apr 2023**	2.73	20.1	47.7	6,353	5.35
MW155S	**25 Sep 2023**	2.21	22.8	-6.9	6,831	5.37
MW202	**11 Oct 2017**	1.33	22	33.9	718	6.07
MW202	**07 Mar 2019**	2.24	23	31.9	739	5.92
MW202	**22 Oct 2019**	1.15	22.3	127.5	857	5.88
MW202	**22 Oct 2019**	1.15	22.3	127.5	857	5.88
MW202	**14 Oct 2020**	4.27	21	-84.3	815	6.09
MW202	**21 Apr 2021**	2.39	22.2	72.5	884	6.17
MW202	**08 Sep 2021**	2.41	23.3	-66.8	886	5.78
MW202	**25 Oct 2021**	3.01	20	130.7	1,381	6.51
MW202	**19 Apr 2022**	2.19	22	-44.6	1,616	6.28
MW202	**21 Sep 2022**	3.22	20.8	14.9	2,486	6.49
MW202	**07 Nov 2022**	1.16	22	16.7	3,238	6.15
MW202	**12 Apr 2023**	3.2	20.7	4.2	2,762	6.33
MW202	**19 Sep 2023**	2.02	21.7	-31.4	1,879	6.17
MW205	**11 Oct 2017**	1.76	19.8	-32.9	1,717	6.06
MW205	**07 Mar 2019**	1.36	21.7	4.4	2,386	5.54
MW205	**22 Oct 2019**	0.7	19.5	26	2,280	6.16
MW205	**22 Oct 2019**	0.7	19.5	26	2,280	6.16
MW205	**14 Oct 2020**	3.45	20.6	-94.3	2,617	5.88
MW205	**21 Apr 2021**	2.17	22.6	199.3	2,424	5.41
MW205	**08 Sep 2021**	1.07	21.1	-35.6	2,349	5.27
MW205	**19 Apr 2022**	0.04	20.2	-117.4	2,637	6.39
MW205	**21 Sep 2022**	0.48	18.5	27.1	2,955	5.61
MW205	**19 Sep 2023**	4.79	20	-50.2	3,278	5.87
MW218	**31 Oct 2016**	0.96	18.6	55	303.6	6.86
MW218	**18 Sep 2017**	1.86	21.7	144.6	289.9	6.33
MW218	**06 Mar 2019**	1.33	24.6	11.9	419.5	6.8
MW218	**29 Oct 2019**	4.84	22	87.3	409	6.05
MW218	**29 Oct 2019**	4.84	22	87.3	409	6.05
MW218	**13 May 2020**	2.25	23.4	47.1	1,140	5.42
MW218	**22 Oct 2020**	1.7	21.2	37.3	3,712	6.39
MW218	**21 Apr 2021**	0.79	23.9	111.9	370.5	6.41
MW218	**09 Sep 2021**	0.53	17.9	-52.4	682	6.74
MW218	**20 Apr 2022**	0.65	24.5	-20.6	407.8	6.61
MW218	**22 Sep 2022**	1.26	18.6	61	170	6.68
MW218	**12 Apr 2023**	0.88	24	0.9	782	6.91
MW218	**19 Sep 2023**	5.83	19.6	-18.8	342.6	7.48

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
Location Code	Date					
POT003	11 Oct 2018	4.41	21.8	114.9	1,372	7.35
POT003	05 Mar 2019	1.32	29.8	82.8	1,217	7.7
POT003	07 Nov 2019	0.45	27.6	-43.2	1,265	7.61
POT003	07 Nov 2019	0.45	27.6	-43.2	1,265	7.61
POT003	14 Oct 2020	3.63	20	46.4	1,146	7.2
POT003	21 Apr 2021	3.79	22.4	26.1	1,093	7.58
POT003	14 Sep 2021	4.09	23.7	-2.2	1,111	7.79
POT003	27 Apr 2022	0.62	20.5	-105.3	1,214	7.4
POT003	22 Sep 2022	4.72	13.6	60.8	778	7.91
POT003	19 Apr 2023	4.49	19	70.5	615	7.76
POT003	15 Sep 2023	1.16	18.8	90	1,037	7.32
POT009	22 Oct 2018	1.81	19.2	70.7	1,536	6.58
POT009	12 Mar 2019	2.44	25.5	179.1	1,893	6.16
POT009	01 Nov 2019	1.75	18.8	-61.3	1,813	5.41
POT009	01 Nov 2019	1.75	18.8	-61.3	1,813	5.41
POT009	11 May 2020	3.92	19.3	66.1	2,275	5.21
POT009	12 Oct 2020	4.23	28.5	19.2	1,705	6.45
POT009	22 Apr 2021	1.78	19	126.4	1,132	6.43
POT009	13 Sep 2021	1.76	15.9	163.6	1,960	5.77
POT009	22 Apr 2022	4.52	21.3	136.6	1,870	5.97
POT009	19 Sep 2022	6.23	14	1.5	652	6.36
POT009	12 Apr 2023	4.52	22.5	43.5	1,361	6.19
POT009	22 Sep 2023	1.88	23.1	-2.5	1,744	5.42
POT014	19 Mar 2019	1.93	25	-35.7	756	7.77
POT014	28 Oct 2019	0.26	28.3	-52.2	678	6.63
POT014	28 Oct 2019	0.26	28.3	-52.2	678	6.63
POT014	11 May 2020	8.5	14.5	58.6	479.2	7.44
POT014	13 Oct 2020	4.49	19.5	-66.9	837	6.89
POT014	13 Oct 2020	4.95	28.9	126.7	803	7.22
POT014	27 Apr 2021	3.35	18.6	121.6	629	7.87
POT014	14 Sep 2021	4.93	17.7	-255.8	706	8.2
POT014	02 May 2022	2.6	18.6	51.5	794	7.41
POT014	22 Sep 2022	2.63	17.6	53.5	810	7.45
POT014	18 Apr 2023	8.35	19.3	35	723	7.36
POT014	18 Sep 2023	7.49	13.9	-13.4	955	7.63
POT015	30 Oct 2018	5.68	22.4	139.1	65.3	7.15
POT015	19 Mar 2019	4.09	32.8	140	827	7.45
POT015	28 Oct 2019	7.49	22	-20	678	6.73
POT015	28 Oct 2019	7.49	22	-20	678	6.73
POT015	15 May 2020	6.67	16.1	90.7	414.3	7
POT015	27 Apr 2021	2.54	21.9	133.1	832	7.34
POT015	14 Sep 2021	1.08	13.6	-239.3	723	7.83
POT015	02 May 2022	1.5	20.6	-8.3	910	7.14
POT015	23 Sep 2022	1	20.7	-107.8	925	6.95
POT015	14 Apr 2023	1.26	20.7	-121.2	854	7.2
POT015	14 Sep 2023	1.03	20.4	-22.8	736	7.12
POT018	11 Apr 2019	1.31	22.7	-126.6	952	6.85
POT018	01 Nov 2019	1.5	20.8	-70.1	927	6.49
POT018	01 Nov 2019	1.5	20.8	-70.1	927	6.49
POT018	11 May 2020	2.44	23.1	56.2	1,188	6.21
POT018	12 Oct 2020	4.64	25	29	1,124	7.24
POT018	19 Apr 2021	2.25	21.7	125.9	113.7	5.89
POT018	13 Sep 2021	7.05	14.3	71.9	37	8.01
POT018	27 Apr 2022	4.15	20	30.7	1,040	6.42
POT018	20 Sep 2022	1.45	19.2	-2.2	988	6.17
POT018	12 Apr 2023	1.29	22	11.6	965	6.16
POT019	04 Aug 2016	3.25	14.9	130.5	1,298	6.28
POT019	15 Oct 2018	1.26	20.9	120.9	3,346	5.92
POT019	05 Mar 2019	0.52	29.5	159.7	4,380	5.07
POT019	01 Nov 2019	1.19	21.1	-67.1	3,866	5.23
POT019	01 Nov 2019	1.19	21.1	-67.1	3,866	5.23
POT019	11 May 2020	3.52	22.6	80.3	4,254	5.51
POT019	12 Oct 2020	5.16	23.8	91	394.5	5
POT019	19 Apr 2021	1.26	22.3	144.8	4,717	5.88
POT019	13 Sep 2021	3.1	20.2	85.1	2,050	7.01
POT019	26 Apr 2022	2.57	20.8	160.8	4,339	5.16
POT019	20 Sep 2022	5.31	15.2	62.6	3,802	6.35
POT019	14 Apr 2023	10.35	18.4	66.8	3,860	4.98
POT019	18 Sep 2023	3.57	20.3	-13	4,059	5.39
POT020	30 Oct 2018	3.44	29.9	176.9	3,741	6.2
POT020	13 May 2020	1.13	22.8	-102.5	3,870	5.28
POT020	13 Oct 2020	1.8	24.1	87.3	1,886	5.52
POT020	22 Apr 2021	0.65	28.5	58.1	2,428	5.87
POT020	17 Sep 2021	1.56	22.1	-160.3	1,915	6.4
POT020	16 Sep 2022	0.89	20.7	45	1,504	5.71
POT020	16 Sep 2022	9.13	19.1	11.2	5,054	5.69
POT020	19 Apr 2023	8.89	20.6	10	1,586	5.81
POT020	18 Sep 2023	7.03	19.1	0.8	187.3	6.45
POT021	11 Oct 2018	0.88	26.3	-42.7	493	7.37
POT021	01 Nov 2019	2.73	20.7	-79.7	476.5	7.82
POT021	01 Nov 2019	2.73	20.7	-79.7	476.5	7.82
POT021	29 Oct 2020	5.1	23.7	52.8	685	6.38
POT021	27 Apr 2021	5.77	17.4	90.4	454.7	7.97
POT021	14 Sep 2021	6.08	18.7	6.3	667	8
POT021	27 Apr 2022	2.11	20.2	-4.8	722	7.22
POT021	21 Sep 2022	0.5	19.5	-59.4	757	7.32
POT021	14 Apr 2023	4.57	21.7	82.6	728	8.11
POT021	18 Sep 2023	6.23	16.6	-17.1	722	8.01
POT027	15 Oct 2018	3.12	28	50.9	608	7.26
POT027	05 Mar 2019	2.15	30.6	150.8	1,207	7.78
POT027	01 Nov 2019	4.54	17.1	-27.2	848	7.89
POT027	01 Nov 2019	4.54	17.1	-27.2	848	7.89

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
POT027	11 May 2020	3.44	16.4	69.9	1,258	7.48
POT027	12 Oct 2020	3.81	20.3	123.4	579	7.13
POT027	20 Apr 2021	2.77	19.2	100.3	1,229	7.3
POT027	14 Sep 2021	3.54	18.7	-72	669	7.76
POT027	27 Apr 2022	4.22	19.4	-49.9	1,259	7.47
POT027	26 Sep 2022	2.9	19.7	55	885	6.92
POT027	14 Apr 2023	3.19	18.3	52.6	1,099	7.6
POT027	18 Sep 2023	3.33	16.7	-2.2	669	7.52
POT029	12 Oct 2018	0.88	21.5	-9.4	482.7	7.55
POT029	08 Mar 2019	0.9	25.8	-88.2	615	7.84
POT029	28 Oct 2019	1.05	27.5	20.3	536	7.21
POT029	28 Oct 2019	1.05	27.5	20.3	536	7.21
POT029	15 May 2020	3.39	20	134.4	314.6	7.43
POT029	13 Oct 2020	4.36	24	37.9	526	7.28
POT029	22 Apr 2021	2.64	22.8	53.1	720	7.2
POT029	14 Sep 2021	2.87	21.3	-127.3	593	7.72
POT029	22 Apr 2022	1.63	16.3	-32.3	614	7.63
POT029	19 Sep 2022	1.13	15	-2.4	557.4	7.58
POT029	17 Apr 2023	0.99	19.8	-2.1	381.4	7.64
POT029	22 Sep 2023	1.47	23	-11.2	569	7.15
POT030	17 Jan 2017	4.17	25.5	105	1,276	7.79
POT030	11 Oct 2018	5.24	23.8	116.4	1,289	7.8
POT030	06 Jun 2019	2.3	19.6	163.1	1,264	7.8
POT030	11 May 2020	4.21	18.4	84.6	1,592	7.6
POT030	20 Apr 2021	3.71	21.1	140.4	1,433	7.7
POT030	21 Sep 2021	4.7	17.9	135.1	1,379	7.89
POT030	27 Apr 2022	4.11	18.4	127.9	1,482	7.63
POT030	21 Sep 2022	0.75	19.1	-96.5	1,591	7.61
POT030	14 Apr 2023	4.01	19.5	109.2	1,386	7.83
POT030	22 Sep 2023	4.26	20.4	70.6	1,500	7.62
POT031	11 Oct 2018	1.99	31.8	132.6	1,508	7.52
POT031	05 Mar 2019	1.77	29.1	194.6	1,586	8.1
POT031	28 Oct 2019	3.09	23.3	12.7	1,265	7.01
POT031	28 Oct 2019	3.09	23.3	12.7	1,265	7.01
POT031	11 May 2020	6.81	16.7	70.3	1,681	7.55
POT031	13 Oct 2020	3.46	23.2	90.9	1,324	7.42
POT031	20 Apr 2021	4.05	20	126.8	1,375	7.71
POT031	13 Sep 2021	4.46	14.6	91.2	1,297	7.4
POT031	22 Apr 2022	3.9	22.3	118.9	1,407	7.77
POT031	19 Sep 2022	3.34	14.8	34.8	1,343	8
POT031	14 Apr 2023	3	18.7	120.1	1,328	7.73
POT031	19 Sep 2023	3.78	18.2	11.6	1,196	7.65
POT032	10 Oct 2018	1.9	30.4	-29.7	464	7.52
POT032	05 Mar 2019	0.4	31.9	-136.3	485	7.89
POT032	28 Oct 2019	1.49	30.6	74.8	476.7	7.16
POT032	28 Oct 2019	1.49	30.6	74.8	476.7	7.16
POT032	13 Oct 2020	1.92	24.5	27.3	448.4	7.21
POT032	22 Apr 2021	0.73	23.8	15.3	467.7	7.99
POT032	27 Apr 2022	1.24	17.6	87.9	459.9	7.75
POT032	19 Sep 2022	3.34	17.6	19.9	506.6	7.09
POT032	13 Apr 2023	1.78	29.2	20	564	7.29
POT032	14 Sep 2023	1.35	18.8	76.8	359.1	7.66
POT040	31 Jan 2017	2	24.8	93.1	1,550	7.5
POT040	22 Oct 2018	5.68	18.7	77.5	1,088	7.31
POT040	07 Mar 2019	4.08	26.4	-115.2	1,681	7.53
POT040	28 Oct 2019	4.48	23.2	27.2	1,334	6.96
POT040	28 Oct 2019	4.48	23.2	27.2	1,334	6.96
POT040	14 Oct 2020	4.53	19.3	-3.1	1,609	7.09
POT040	20 Apr 2021	4.41	22.9	98.7	1,403	7.52
POT040	14 Sep 2021	1.79	20.2	-143.6	1,109	7.43
POT040	22 Apr 2022	3.57	22.1	115.2	1,628	7.44
POT040	19 Sep 2022	4.21	15.6	24	1,384	6.92
POT040	14 Apr 2023	4.86	16.7	54.3	1,504	7.44
POT040	22 Sep 2023	4.52	27.6	-9.7	1,439	7.13
POT042	18 Oct 2018	1.3	19.3	87.8	606	7.49
POT042	08 Mar 2019	0.8	25.7	-11.1	725	7.61
POT042	01 Nov 2019	1.87	21	-83	671	7.6
POT042	01 Nov 2019	1.87	21	-83	671	7.6
POT042	15 May 2020	5.15	20.8	79	5.9	7.27
POT042	13 Oct 2020	2.03	23.3	126.4	725	7.01
POT042	22 Apr 2021	1.3	20.6	97.7	765	7.47
POT042	16 Sep 2021	0.77	17.9	-149.7	661	7.5
POT042	26 Apr 2022	1.88	21.6	71.3	738	7.58
POT042	22 Sep 2022	2.32	14.2	55.8	744	7.46
POT042	14 Apr 2023	1.05	21.8	17.4	671	7.4
POT042	22 Sep 2023	0.68	22.5	4	728	7
POT044	06 Nov 2018	1.89	20.5	160.5	2,117	7.53
POT044	07 Mar 2019	1.16	24.5	142	2,142	7.65
POT044	15 May 2020	3.81	17.1	-7.8	746	7.08
POT044	13 Oct 2020	1.39	24.5	139.1	2,248	6.96
POT044	22 Apr 2021	3.14	19.9	64.6	1,925	7.8
POT044	13 Sep 2021	1.03	31.7	77.1	2,393	7.52
POT044	27 Apr 2022	1.34	19.2	90.8	2,204	7.58
POT044	19 Sep 2022	0.59	14	6.2	2,291	7.22
POT044	17 Apr 2023	0.68	18.6	80.2	1,905	7.34
POT044	22 Sep 2023	0.89	23.3	-10.3	2,145	7.2
POT052	08 Feb 2018	1.9	23.2	-216.2	1,400	7.14
POT052	19 Oct 2018	5.14	18.6	58.2	1,111	7.61
POT052	07 Mar 2019	0.73	25.1	-153.5	1,620	7.42
POT052	01 Nov 2019	2.63	20.1	-71.5	1,626	7.37
POT052	01 Nov 2019	2.63	20.1	-71.5	1,626	7.37
POT052	14 Oct 2020	5.15	18.8	152.2	1,539	6.58
POT052	21 Apr 2021	0.64	21.4	91.9	1,778	6.99
POT052	13 Sep 2021	0.79	15.9	5.1	1,774	7.38
POT052	26 Apr 2022	0.89	18.8	1.7	1,925	7

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
POT052	22 Sep 2022	0.79	15.5	73.6	1,853	6.92
POT052	14 Apr 2023	3.46	21.6	59	1,568	7.66
POT052	19 Sep 2023	4.61	18.1	267	1,650	7.4
POT070D	20 Apr 2021	1.74	21.9	59.2	985	7.32
POT070D	21 Sep 2022	1.28	20.1	-17.5	621	7.87
POT070D	17 Apr 2023	1.3	22.4	-64.2	1,004	7.51
POT070S	15 Feb 2018	1.84	36.5	28.1	2,710	7.1
POT070S	22 Oct 2018	3.53	19	40	2,307	7.22
POT070S	12 Mar 2019	0.85	25.7	-135.2	2,510	7.27
POT070S	01 Nov 2019	1.32	20.2	-81.4	2,489	7.66
POT070S	01 Nov 2019	1.32	20.2	-81.4	2,489	7.66
POT070S	29 Oct 2020	2.97	22.5	78	2,722	6.93
POT070S	20 Apr 2021	3.55	21.7	82.7	2,664	7.17
POT070S	21 Sep 2021	3.81	20.3	-37.8	630	7.72
POT070S	22 Apr 2022	1.45	19.4	-20	2,720	7.12
POT070S	22 Sep 2022	4.22	18.3	70	2,773	7.42
POT070S	17 Apr 2023	3.56	22.1	-117.5	2,823	7.14
POT070S	18 Sep 2023	2.18	20.3	-30.4	3,127	7.18
POT073	15 Feb 2018	1.57	39.1	15.3	840	7.6
POT073	17 Oct 2018	0.78	27.6	91.6	1,585	7.46
POT073	05 Mar 2019	0.83	27.9	-138.5	1,577	7.76
POT073	19 Nov 2019	67.3	26.3	66.3	458.5	7.13
POT073	19 Nov 2019	67.3	26.3	66.3	458.5	7.13
POT073	11 May 2020	2.52	21.3	65.3	1,715	7.47
POT073	29 Oct 2020	5.18	19.5	-15.5	1,566	6.75
POT073	19 Apr 2021	0.78	20.8	34.3	1,643	7.51
POT073	13 Sep 2021	1.12	21.6	35	1,608	7.57
POT073	26 Apr 2022	0.69	20.5	77.8	1,622	7.52
POT073	14 Apr 2023	1.86	20.8	100.5	1,530	7.57
POT073	19 Sep 2023	4.77	19.3	-2	1,647	7.48
POT076	15 Feb 2018	1.31	27.9	-80.1	970	7.34
POT076	06 Nov 2018	2.6	21	34.1	989	7.68
POT076	01 Nov 2019	1.08	20.2	-74.8	1,011	7.8
POT076	01 Nov 2019	1.08	20.2	-74.8	1,011	7.8
POT076	11 May 2020	1.47	19.1	61.7	1,100	7.38
POT076	13 Oct 2020	0.81	21.9	100.9	1,105	7.09
POT076	27 Apr 2021	1.14	13.8	-19.6	1,001	7.47
POT076	13 Sep 2021	0.58	20.7	15.3	989	6.92
POT076	26 Apr 2022	0.78	20.2	-16.9	945	7.56
POT076	22 Sep 2022	1.92	12.7	48.9	1,087	7.47
POT076	14 Apr 2023	2.3	20.5	15.3	925	7.48
POT076	22 Sep 2023	1.82	25.7	-6.6	1,229	7.18
POT080	16 Feb 2018	4	28.7	-24.2	1,115	7.63
POT080	29 Oct 2018	4.75	21.8	-52.6	957	7.52
POT080	07 Mar 2019	0.39	22.8	-28.9	1,082	7.86
POT080	18 Nov 2019	0.68	25	36.1	1,378	7.04
POT080	18 Nov 2019	0.68	25	36.1	1,378	7.04
POT080	29 Oct 2020	4.22	23.2	118.7	1,024	6.8
POT080	22 Apr 2021	1.15	18.7	14.8	1,162	7.24
POT080	13 Sep 2021	1.07	12.8	-34.5	1,117	7.8
POT080	27 Apr 2022	1.59	19.9	-112.3	1,060	7.66
POT080	21 Sep 2022		14.1	57.5	1,026	6.75
POT080	17 Apr 2023	1.56	18.3	41.9	979	7.63
POT080	18 Sep 2023	1.9	16.3	17.2	1,029	7.59
POT081	16 Feb 2018	1.65	26.9	-97.7	1,110	7.56
POT081	17 Oct 2018	1	30.1	34.8	1,162	7.43
POT081	05 Mar 2019	0.35	32.5	-114.7	1,153	7.54
POT081	14 Sep 2021	1.55	26.1	-19.5	1,208	7.6
POT081	27 Apr 2022	2.96	20.3	-19.4	1,126	7.5
POT081	21 Sep 2022	6.22	15.9	77.6	1,059	7.62
POT081	14 Apr 2023	1.76	19.9	37.4	1,131	7.59
POT081	18 Sep 2023	4.83	19.2	8.2	1,179	7.39
POT086	16 Feb 2018	1.71	25.2	27.5	700	7.51
POT086	10 Oct 2018	1.42	22.9	39.2	1,183	7.5
POT086	08 Mar 2019	0.89	22.3	-64.4	1,200	7.86
POT086	01 Nov 2019	6.4	19.5	-55.9	1,130	7.99
POT086	01 Nov 2019	6.4	19.5	-55.9	1,130	7.99
POT086	11 May 2020	3.24	21	61.8	1,245	7.53
POT086	13 Oct 2020	1.13	22.7	-20.8	1,190	7.16
POT086	22 Apr 2021	5.15	20.4	146.1	1,227	7.88
POT086	13 Sep 2021	1.59	21.1	5.1	1,160	7.58
POT086	27 Apr 2022	3.76	21.7	91	1,264	7.64
POT086	21 Sep 2022	2.42	18.8	69.7	1,086	7.47
POT086	14 Apr 2023	3.64	20.5	89.3	1,225	7.62
POT089	19 Feb 2018	0.5	27.6	-70.6	1,112	7.28
POT089	17 Oct 2018	1.42	25.2	15.2	977	7.32
POT089	12 Mar 2019	0.83	37.2	25.5	1,065	7.54
POT089	28 Oct 2019	0.57	27	10.3	960	6.88
POT089	28 Oct 2019	0.57	27	10.3	960	6.88
POT089	28 Apr 2022	1.43	17.6	114.8	982	7.57
POT089	19 Sep 2022	1.11	18.3	12.8	969	7.05
POT089	14 Apr 2023	3.96	21	120.5	894	7.74
POT092	15 Feb 2018	3.17	29.2	33.1	2,400	7.68
POT092	18 Oct 2018	5.51	17.1	40.6	2,119	7.72
POT092	19 Mar 2019	2.54	30.2	125.1	2,557	7.71
POT092	01 Nov 2019	4.73	18.5	-39.9	1,638	6.98
POT092	07 Nov 2019	3.91	26.1	-56.6	2,800	7.91
POT092	07 Nov 2019	3.91	26.1	-56.6	2,800	7.91
POT092	11 May 2020	7.18	19.5	62.8	2,584	7.52
POT092	13 Oct 2020	5.04	24.4	90.6	2,772	7.24
POT092	20 Apr 2021	5.25	21.1	138.2	2,665	7.38
POT092	13 Sep 2021	4.33	4.46	123.3	2,663	7.41
POT092	27 Apr 2022	6.2	19.7	99.6	2,911	7.66
POT092	21 Sep 2022	4.01	18.5	52.2	2,882	7.21
POT092	19 Apr 2023	10.96	20.3	30.6	2,731	7.64

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
POT092	22 Sep 2023	4.21	22	40.8	2,829	7.42
POT099	21 Feb 2018	1.6	29.1	83.1	1,160	7.88
POT099	19 Oct 2018	1.59	18.6	80.5	1,045	7.82
POT099	08 Mar 2019	4.03	25	97.2	1,212	8.06
POT099	13 Oct 2020	4.22	35	35.9	1,553	7.05
POT099	19 Apr 2021	4.32	20.7	64	1,367	7.65
POT099	19 Apr 2021	4.32	20.7	64	1,367	7.65
POT099	13 Sep 2021	4.67	18.1	62.4	1,303	7.81
POT099	26 Apr 2022	4.06	19.9	73.5	1,304	7.83
POT099	22 Sep 2022	4.14	17.4	91.4	1,298	6.79
POT099	14 Apr 2023	4.98	21.3	68.8	1,245	7.92
POT099	19 Sep 2023	2.93	18.4	-18.8	1,318	7.51
POT100	21 Feb 2018	4.83	33.2	72.4	1,660	8.18
POT100	18 Oct 2018	7.42	19	50	1,407	8.16
POT100	05 Mar 2019	1.43	23.3	-195.1	1,793	7.77
POT100	01 Nov 2019	5.81	18.8	-53.5	1,530	8.01
POT100	01 Nov 2019	5.81	18.8	-53.5	1,530	8.01
POT100	03 Jun 2020	2.08	23.9	29.2	2,306	6.86
POT100	13 Oct 2020	5.12	26.9	51.5	1,738	7.75
POT100	22 Apr 2021	3.98	22.1	69.9	1,710	7.87
POT100	13 Sep 2021	3.9	19.7	53.7	1,635	7.75
POT100	27 Apr 2022	7.5	17.2	91.2	1,745	8.12
POT100	21 Sep 2022	1.06	14	56.4	1,672	6.79
POT100	18 Apr 2023	1.79	15.7	99.6	1,456	7.34
POT100	14 Sep 2023	1.46	13.3	80.2	1,190	7.3
POT114	01 Mar 2018	2.41	28.9	102	1,370	7.75
POT114	22 Nov 2018	0.95	21.2	103.6	1,221	7.88
POT114	07 Mar 2019	1.68	25	161.8	1,347	7.92
POT114	07 Nov 2019	3.08	22.2	-2.3	1,372	7.79
POT114	07 Nov 2019	3.08	22.2	-2.3	1,372	7.79
POT114	03 Jun 2020	5.19	19.6	65.3	1,850	7.33
POT114	13 Oct 2020	5.49	21.4	123	1,300	7.48
POT114	19 Apr 2021	2	18.8	114.6	1,395	7.81
POT114	13 Sep 2021	4.8	16.9	130.6	1,440	7.01
POT114	22 Apr 2022	4.69	19.7	153.1	1,520	7.38
POT114	21 Sep 2022	1.71	19	-29.6	1,492	7.81
POT114	13 Apr 2023	1.27	24.2	91.1	1,524	7.99
POT114	19 Sep 2023	4.66	17.3	1.1	1,522	7.72
POT116	01 Mar 2018	3.05	23.7	114.3	1,740	7.52
POT116	10 Oct 2018	4.42	24.1	52.4	1,768	7.35
POT116	19 Mar 2019	1.46	32.8	129.2	1,814	7.57
POT116	01 Nov 2019	4.73	18.5	-39.9	1,638	6.98
POT116	19 Apr 2021	2.85	19.3	79.8	1,773	7.35
POT116	13 Sep 2021	40.8	16.1	140.8	1,157	7.19
POT116	27 Apr 2022	3.61	20	114.2	1,711	7.54
POT116	19 Sep 2022	3.36	14.3	50.7	1,736	7
POT116	14 Apr 2023	3.91	20.1	35.6	1,604	7.56
POT116	14 Sep 2023	4.35	16.8	86.9	1,380	7.48
POT124	22 May 2018	0.76	19.9	-109.9	495.7	7.55
POT124	29 Oct 2018	0.55	24.8	-104.2	492.1	7.49
POT124	06 Jun 2019	0.68	17.5	-27.4	447.4	7.81
POT124	29 Oct 2019	1.04	24.3	-25.1	455.3	7.22
POT124	29 Oct 2019	1.04	24.3	-25.1	455.3	7.22
POT124	11 May 2020	0.97	37	39.6	618	7.26
POT124	14 Oct 2020	0.81	23.5	-61.7	505	7.04
POT124	21 Apr 2021	0.72	15.7	-50.7	527.4	7.71
POT124	16 Sep 2021	1.27	11.9	-143.8	493.3	7.69
POT124	28 Apr 2022	1.18	15.2	103.3	526.8	7.8
POT124	22 Sep 2022	1.6	11.5	67.2	551.8	7.19
POT124	14 Apr 2023		19.8	-90.2	13.84	7.78
POT124	19 Sep 2023	1.39	19.9	-33.7	497	7.67
POT125	22 May 2018	2.32	25.1	29.7	1,971	7.28
POT125	15 Oct 2018	3.89	20.5	129.6	1,681	7.6
POT125	06 Jun 2019	0.58	19.4	-130.3	452.8	7.92
POT125	01 Nov 2019	4.32	18	-56.9	1,646	8.02
POT125	01 Nov 2019	4.32	18	-56.9	1,646	8.02
POT125	27 Apr 2021	4.3	15.4	95.7	1,735	7.48
POT125	27 Apr 2022	3.11	19.2	-1.3	2,114	7.49
POT125	19 Sep 2022	2.56	15	72.5	1,962	7.35
POT125	19 Apr 2023	3	18.7	112.4	1,613	8
POT127	22 May 2018	6.08	23.6	107.5	763	8.32
POT127	11 Oct 2018	6.64	22.9	101.8	739	8.05
POT127	07 Mar 2019	3.9	25.9	183.7	643	8.7
POT127	28 Oct 2019	4.53	24.8	119.6	705	7.44
POT127	28 Oct 2019	4.53	24.8	119.6	705	7.44
POT127	15 May 2020	6.12	23.5	170	15.1	7.65
POT127	13 Oct 2020	1.34	21.4	120.1	769	7.53
POT127	19 Apr 2021	4.76	22.4	108.4	851	8.24
POT127	14 Sep 2021	4	17	6.3	828	7.87
POT127	22 Apr 2022	0.6	20.3	104.2	778	8.31
POT127	21 Sep 2022	4.27	17.7	34.7	844	7.77
POT127	13 Apr 2023	8.45	22	-35.5	745	8.28
POT127	18 Sep 2023	7.01	15.3	-2.4	802	7.9
POT128	22 May 2018	0.54	21.5	-192.1	2,226	7.02
POT128	19 Sep 2018	1.74	23.3	-208.4	2,070	7.06
POT128	12 Mar 2019	3.17	40	123.2	1,581	7.55
POT128	06 Jun 2019	4.49	18.4	-156.9	2,009	7.31
POT128	29 Oct 2019	3.06	25.7	-77.8	2,159	7.1
POT128	29 Oct 2019	3.06	25.7	-77.8	2,159	7.1
POT128	14 Oct 2020	4.09	19.8	-27.9	2,196	7.16
POT128	21 Apr 2021	4.13	21.2	63.7	2,227	7.43
POT128	17 Sep 2021	6	12.5	-237.5	2,226	7.74
POT128	27 Apr 2022	3.34	29.2	-12.6	2,094	7.73
POT128	23 Sep 2022	4.16	24.2	-216.2	2,499	6.46
POT128	14 Apr 2023	4.65	20.5	-127.2	1,996	7.47

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
POT128	**22 Sep 2023**	3.38	25.9	-156.2	2,109	7.49
POT136	**14 Jun 2018**	3.17	15.7	48.4	532	7.59
POT136	**11 May 2020**	2.52	17.2	66.3	567.9	7.52
POT136	**22 Oct 2020**	1.39	20.3	-1.4	653	7.18
POT136	**20 Apr 2021**	1.46	25.6	108.5	758	7.76
POT136	**16 Sep 2021**	0.97	14.6	-190.1	686	8.19
POT136	**26 Apr 2022**	1.25	21.4	11.2	702	7.68
POT136	**22 Sep 2022**	3.68	15.1	51.9	774	7.55
POT136	**14 Apr 2023**	1.05	19	36.1	644	7.69
POT136	**18 Sep 2023**	2.03	16.4	-13.5	670	7.68
POT137	**14 Jun 2018**	3.36	16.5	45.8	1,302	7.38
POT137	**28 Nov 2018**	1.74	20	-21.2	1,341	7.55
POT137	**22 Oct 2020**	6.71	20.2	81.7	1,514	6.95
POT137	**22 Apr 2021**	1.62	18.2	49.3	1,810	7.38
POT137	**14 Sep 2021**	5.68	24.1	23.5	1,627	7.47
POT137	**27 Apr 2022**	7.21	20.3	63	1,673	7.53
POT137	**21 Sep 2022**	1.75	16.7	107.1	1,620	7.26
POT137	**14 Apr 2023**	3.36	19.4	28.6	1,567	7.42
POT137	**22 Sep 2023**	1.45	28	7.7	1,536	7.3
POT147	**19 Oct 2018**	2.62	19.8	87.9	1,097	7.45
POT147	**09 May 2019**	2.01	22.2	8.1	2,053	7.42
POT147	**28 Oct 2019**	2.16	21.1	21.2	880	6.83
POT147	**28 Oct 2019**	2.16	21.1	21.2	880	6.83
POT147	**15 May 2020**	2.33	22.1	134.1	1,948	7.38
POT147	**12 Oct 2020**	411	187	1,096	1,065	7.03
POT147	**21 Apr 2021**	0.56	25.3	-73.2	2,090	7.32
POT147	**14 Sep 2021**	2.13	18.5	-98	1,298	7.33
POT147	**21 Apr 2022**	0.82	23.6	-60.3	1,800	7.32
POT147	**21 Sep 2022**	3.69	16.4	26	1,121	7.19
POT147	**12 Apr 2023**	0.59	22.7	-34.2	2,053	7.21
POT147	**14 Sep 2023**	3.72	17.4	55.3	964	7.37
POT155	**28 Nov 2018**	13.85	25.1	113.1	993	8.13
POT155	**27 Apr 2022**	4.79	21.4	-128.7	1,401	7.61
POT155	**19 Sep 2022**	1.55	18.7	-191.3	1,061	7.16
POT155	**14 Apr 2023**	1.49	18.2	-26.5	1,315	7.52
POT155	**18 Sep 2023**	1.64	17.3	-31.3	1,352	7.37
POT159	**08 Feb 2019**	0.81	27.4	153.5	1,386	7.49
POT159	**01 Nov 2019**	1.01	18.2	-83.6	1,172	7.72
POT159	**01 Nov 2019**	1.01	18.2	-83.6	1,172	7.72
POT159	**29 Oct 2020**	0.6	31.9	103.2	1,366	7.08
POT159	**19 Apr 2021**	0.81	22.8	144.2	1,380	7.67
POT159	**16 Sep 2021**	2.03	16.7	-112.2	1,249	7.37
POT159	**02 May 2022**	0.89	21.3	18.6	1,292	7.45
POT159	**22 Sep 2022**	2.05	13.2	76.1	1,245	7.28
POT159	**14 Apr 2023**	1.39	21.2	78.3	1,251	7.49
POT159	**15 Sep 2023**	3.6	18.6	23	1,256	7.02
POT165	**09 May 2019**	8.22	22	186.7	1,193	7.67
POT165	**18 Nov 2019**	3.15	31.9	85.5	1,190	6.77
POT165	**18 Nov 2019**	3.15	31.9	85.5	1,190	6.77
POT165	**22 Apr 2021**	3.17	20.8	163.4	1,210	7.61
POT165	**14 Sep 2021**	5.32	23.1	0.7	1,183	7.63
POT165	**26 Apr 2022**	2.29	22.4	106	1,259	7.48
POT165	**19 Sep 2022**	3.7	22.9		1,237	7.37
POT165	**18 Sep 2023**	3.79	20.1	0	12,226	7.46
POT181	**15 May 2020**	1.95	23.4	83.9	595	7.63
POT181	**13 Oct 2020**	2.5	25.4	132.3	502	7.34
POT181	**20 Apr 2021**	2.72	25.1	96.7	665	7.79
POT181	**14 Sep 2021**	1.56	19.9	-85.3	504.4	7.68
POT181	**22 Apr 2022**	3	21.6	104.9	687	7.81
POT181	**21 Sep 2022**		20.6	62	557	7.75
POT181	**12 Apr 2023**	1.11	23.1	93.8	703	7.74
POT181	**15 Sep 2023**	3.37	18.4	12.8	393.3	7.78

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
Location Code	**Date**					
SW002	**13 Jun 2019**	7.6	14.2	156.8	412.9	7.61
SW002	**14 Jun 2019**	7.37	12.6	153.9	396.9	7.3
SW002	**15 Jun 2019**	6.26	12.7	156.7	402.6	7.11
SW002	**16 Jun 2019**	7.18	12.7	152.3	451.4	7.15
SW002	**17 Jun 2019**	7.21	12.8	179.4	470.6	7.04
SW002	**02 Jul 2020**	9.3	9.2	-112	145.4	8.15
SW002	**02 Jul 2020**	9.3	9.2	70.9	145.4	8.15
SW002	**03 Jul 2020**	9.79	10.9	108.1	314.5	6.83
SW002	**04 Jul 2020**	7.92	13	48.8	312.8	5.85
SW002	**21 Jun 2022**	6.58	12.6	87.7	246	7.54
SW002	**22 Jun 2022**	6.43	9.6	97.2	321.7	6.99
SW002	**23 Jun 2022**	6.83	11.2	60	343.2	7.38
SW002	**24 Jun 2022**	6.77	10.6	86.2	268.9	7.54
SW002	**25 Jun 2022**	7.74	8.5	70.1	300.6	7.48
SW002	**09 Jun 2023**	8.01	15.4	56.7	1,243	8.34
SW002	**10 Jun 2023**	5.21	13.5	106.9	1,389	8.26
SW002	**12 Jun 2023**	8.59	10.5	76.9	1,430	8.32
SW002	**13 Jun 2023**	8.68	11.1	71.1	1,395	8.36
SW005	**12 May 2020**	8.26	21.8	38.3	1,464	7.65
SW007	**13 Jun 2019**	6	13.7	159.1	207.3	7.77
SW007	**14 Jun 2019**	2.71	13.3	151.2	244.4	6.88
SW007	**15 Jun 2019**	4.51	15	152.5	231.2	7.41
SW007	**16 Jun 2019**	2.57	13.6	149.7	209.1	7.17
SW007	**17 Jun 2019**	2.35	13.4	179.3	239.9	7.11
SW007	**02 Jul 2020**	4.15	10.7	-40.8	402.2	7.13
SW007	**03 Jul 2020**	3.25	12	-30.2	283.6	6.92
SW007	**04 Jul 2020**	3.39	12.2	30.3	491.7	5.68
SW007	**21 Jun 2022**	5.76	15.1	94.1	488.2	7.24
SW007	**22 Jun 2022**	4.56	13.9	160.1	516.8	7.27
SW007	**23 Jun 2022**	4.5	14.2	86.5	490.5	7.27
SW007	**24 Jun 2022**	4.48	14	95.8	498.6	7.39
SW007	**25 Jun 2022**	3.75	12.1	84.4	570.9	7.29
SW007	**24 Apr 2023**	6.5	18.6	3.8	265.1	7.47
SW007	**09 Jun 2023**	2.05	15.7	52.1	428.4	7.36
SW007	**10 Jun 2023**	2.37	14.6	117.2	507	7.33
SW007	**11 Jun 2023**	5.55	16.3	-109.1	354.1	7.35
SW007	**12 Jun 2023**	1.55	13.6	77.2	480	7.24
SW007	**13 Jun 2023**	2.67	14	72.6	592	7.23
SW008	**19 Sep 2016**	7.57	17	61.7	136.9	
SW008	**26 Sep 2022**	6.77	15.9	21.8	378.7	6.83
SW010	**19 Sep 2016**	8.1	20.2	52.8	128.5	
SW010	**13 Jun 2019**	6.09	13	156.5	156.8	7.4
SW010	**14 Jun 2019**	3.94	13.3	141.5	190.7	6.55
SW010	**15 Jun 2019**	6.24	14.6	151.9	164.8	7.18
SW010	**16 Jun 2019**	4.05	13	151.4	168.7	6.73
SW010	**17 Jun 2019**	4.38	12.4	156.6	178.4	6.82
SW010	**02 Jul 2020**	7.37	11.1	23.2	22,302	7.38
SW010	**03 Jul 2020**	9.38	12.6	61.6	287.3	7.03
SW010	**04 Jul 2020**	5.1	10.3	31	216.5	5.73
SW010	**21 Jun 2022**	5.28	13.3	90	134.3	7.24
SW010	**22 Jun 2022**	5.82	10.7	163.2	146.2	7.39
SW010	**23 Jun 2022**	3.82	12.8	76.5	158.2	7.28
SW010	**24 Jun 2022**	6.83	11.5	83.6	158.4	7.69
SW010	**26 Sep 2022**	8.72	16	36.2	219.6	7.82
SW010	**09 Jun 2023**	6.25	14.5	92	198.9	7.59
SW010	**10 Jun 2023**	3.37	14.3	116.5	233.2	7.67
SW010	**11 Jun 2023**	5.55	12.6	-100.9	200	7.06
SW010	**12 Jun 2023**	6.18	12.3	76.5	205.9	7.17
SW010	**13 Jun 2023**	4.81	11.5	73.7	211.7	7.02
SW013	**19 Sep 2016**	7.02	18.3	52.2	132	
SW013	**26 Sep 2022**	6.5	14.9	31.7	235.1	6.97
SW015	**19 Sep 2016**	8.18	18.1	59.9	123.7	
SW015	**13 Jun 2019**	4.29	14	150.1	172.8	7.23
SW015	**14 Jun 2019**	5.76	14.8	136.8	191.1	6.66
SW015	**15 Jun 2019**	7.45	15.3	151.5	179.9	6.98
SW015	**16 Jun 2019**	2.09	14.7	152	193.4	6.46
SW015	**17 Jun 2019**	2.09	14.5	167.1	200	6.22
SW015	**02 Jul 2020**	9.06	13.2	89.6	112.5	7.85
SW015	**03 Jul 2020**	4.52	13.6	110.9	255.1	6.63
SW015	**04 Jul 2020**	2.55	12.6	29.7	194.5	5.67
SW015	**28 Apr 2022**	5.59	18.9	23.7	293	7.96
SW015	**21 Jun 2022**	5.93	13.9	85.5	224.4	7.6
SW015	**22 Jun 2022**	5.46	11.8	158.5	154.4	7.8
SW015	**23 Jun 2022**	3.21	14	72.5	269.3	7.43
SW015	**24 Jun 2022**	6.76	12.2	80.4	198.9	8.07
SW015	**26 Sep 2022**	2.04	14.3	25.8	337.9	6.23
SW015	**24 Apr 2023**	8.58	20.2	37.1	369.1	7.48
SW015	**09 Jun 2023**	5.22	14.5	84.2	207.9	7.68
SW015	**10 Jun 2023**	2.75	15.8	128.7	205.2	7.57
SW015	**11 Jun 2023**	6.59	13.3	-97.5	166.6	7.01
SW015	**12 Jun 2023**	3.75	14	76	184.3	6.85
SW015	**13 Jun 2023**	3.58	14.5	74.1	197.1	6.67
SW016	**19 Sep 2016**	11.68	15.5	110.1	141.9	
SW016	**25 Oct 2019**	8.98	22.1	108.9	427	8.08
SW016	**08 May 2020**	14.72	19.7	60.9	395.8	7.19
SW016	**12 Oct 2020**	7.79	23.1	89.7	364.2	7.34
SW016	**20 Sep 2022**	5.64	17.3	45.8	143.6	7.3
SW018	**19 Sep 2016**	8.74	16.2	65	153	
SW018	**05 Mar 2019**	1	25.1	29.7	856	9.31
SW018	**13 Jun 2019**	8.82	14.7	163.6	357.3	8.23
SW018	**14 Jun 2019**	8.08	15.4	128.7	362.6	7.74
SW018	**15 Jun 2019**	8.98	15.5	150.4	258.8	7.61
SW018	**16 Jun 2019**	8.55	16	147.7	187.4	7.99
SW018	**17 Jun 2019**	8.62	15.4	168.3	357.6	8.01

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
SW018	**28 Oct 2019**	0.27	23.6	100.4	967	8.62
SW018	**12 May 2020**	11.16	23.6	40.5	495.1	8.72
SW018	**02 Jul 2020**	7.97	15.5	51.9	326.7	8
SW018	**03 Jul 2020**	9.67	15.7	82.1	414.6	8.05
SW018	**04 Jul 2020**	4.58	15.5	34.2	343	6.21
SW018	**13 Oct 2020**	5.11	25.6	30	498.1	7.85
SW018	**29 Apr 2021**	5.29	21.5	45.4	4.2	7.97
SW018	**21 Apr 2022**	6.22	22.6	54.5	913	8
SW018	**21 Jun 2022**	7.16	14.8	93.2	360.1	8.52
SW018	**22 Jun 2022**	7.98	13.1	115.7	435.2	7.52
SW018	**23 Jun 2022**	7.75	14.3	80	446.6	7.87
SW018	**24 Jun 2022**	6.84	13.3	84.4	407.4	7.93
SW018	**25 Jun 2022**	7.95	11	84.6	438.1	7.87
SW018	**26 Sep 2022**	6.83	12.9	47	771	8.17
SW018	**12 Apr 2023**		20.8	-6.9	561	7.88
SW018	**09 Jun 2023**	6.91	15.4	45.3	319	7.86
SW018	**10 Jun 2023**	4.44	15.1	115.3	436.2	7.81
SW018	**11 Jun 2023**	6.07	14.7	-101.5	259.6	7.67
SW018	**12 Jun 2023**	7.75	13.7	76.7	3,726	7.77
SW018	**13 Jun 2023**	7.76	13.9	72.5	457.3	7.77
SW020	**19 Sep 2016**	9.48	18.5	32.4	163.7	
SW020	**13 Jun 2019**	8.97	11.9	170.5	345.9	9.23
SW020	**14 Jun 2019**	9.94	12.5	138.2	441.3	7.07
SW020	**15 Jun 2019**	8.32	12.5	154.2	247.1	7.51
SW020	**16 Jun 2019**	9.05	12.9	151.2	338.3	7.44
SW020	**17 Jun 2019**	8.17	12.5	170.9	419.8	7.38
SW020	**28 Oct 2019**	8.11	28.9	94.6	1,019	8.21
SW020	**12 May 2020**	9.1	21.4	42.1	837	8.25
SW020	**02 Jul 2020**	8.77	11.1	69.9	244.2	8.01
SW020	**03 Jul 2020**	10.05	13.2	63.4	371.5	7.89
SW020	**04 Jul 2020**	6.99	11.1	37.2	296.3	6.28
SW020	**13 Oct 2020**	5.45	27.1	61.5	812	8.16
SW020	**20 Apr 2021**	5.61	24.9	43.7	926	8.18
SW020	**21 Apr 2022**	8.33	27.2	51	814	8.5
SW020	**21 Jun 2022**	8.89	14.8	54.4	335.6	10.42
SW020	**22 Jun 2022**	7.22	11.8	88.5	434.8	10.59
SW020	**23 Jun 2022**	6.64	13.7	65.8	427.7	8.06
SW020	**24 Jun 2022**	7.22	13.6	83.3	391.9	8.13
SW020	**25 Jun 2022**	7.28	10.9	79.7	434.4	8.05
SW020	**22 Sep 2022**	7.91	18.8	85.2	451	8.38
SW020	**12 Apr 2023**	4.71	20	11.9	465	8.03
SW020	**09 Jun 2023**	7.55	15	62.8	318.2	7.94
SW020	**10 Jun 2023**	4.6	14.7	131	374.1	7.85
SW020	**11 Jun 2023**	6.28	14.1	-99	217.6	7.7
SW020	**12 Jun 2023**	7.47	12.1	76.7	345.3	7.92
SW020	**13 Jun 2023**	7.44	13.3	76	401.7	7.85
SW021	**21 Sep 2016**	8.49	19.1	62.6	1,764	
SW021	**08 Mar 2019**	4.44	22	102.4	15,319	7.52
SW021	**22 Oct 2019**	5.48	23.9	-72.9	2,478	7.01
SW021	**06 May 2020**	15.17	17.7	-103.1	2,723.7	9.21
SW021	**12 Oct 2020**	6.51	16.4	955	209.6	6.83
SW021	**19 Apr 2022**	17.3	22.8	-66.7	24,392	9.1
SW021	**19 Sep 2022**	5.47	14.1	14.1	1,464	6.94
SW021	**12 Apr 2023**	3.83	17.6	7.3	25,765	8.37
SW022	**13 Jun 2019**	2.17	13	155.5	258.2	7.9
SW022	**14 Jun 2019**	2.85	12.4	153.8	381.6	7.65
SW022	**15 Jun 2019**	2.07	13.1	154.8	236.3	7.51
SW022	**16 Jun 2019**	1.55	12.4	147.6	285.5	7.47
SW022	**17 Jun 2019**	2.24	12.3	182.7	328.5	7.12
SW022	**30 Oct 2019**	0.32	15.4	-190.3	1,078	6.54
SW022	**13 May 2020**	3.52	18.9	-70.9	751	6.72
SW022	**02 Jul 2020**	4.94	14.7	150.7	295.6	7.32
SW022	**03 Jul 2020**	6.67	15.1	92.6	420.7	6.9
SW022	**04 Jul 2020**	5.33	12.5	44	370.5	5.73
SW022	**12 Oct 2020**	3.7	23.1	50.7	1,273	6.94
SW022	**19 Apr 2021**	6.12	21.8	23.2	2,037	7.94
SW022	**25 Oct 2021**	6.75	20.2	73.7	1,165	6.79
SW022	**20 Apr 2022**	6.99	22.7	68.6	5,081	7.09
SW022	**21 Jun 2022**	6.15	16.3	89	589.3	7.93
SW022	**22 Jun 2022**	5.33	15.5	110.1	746	7.62
SW022	**23 Jun 2022**	5.8	15.5	84.7	840	7.49
SW022	**24 Jun 2022**	5.16	15.5	88	464.6	7.61
SW022	**25 Jun 2022**	5.89	13.6	83.5	570	7.57
SW022	**22 Sep 2022**	5.56	16.4	77.1	534.8	6.79
SW022	**03 Nov 2022**	4.06	28	29.2	2,579	7.4
SW022	**12 Apr 2023**	1.45	21.3	56.8	4,514	7.17
SW022	**09 Jun 2023**	5.6	16.4	52	505	7.61
SW022	**10 Jun 2023**	4.53	15.9	138.5	1,114	7,062
SW022	**11 Jun 2023**	5.61	14.6	-101.9	623	7.34
SW022	**12 Jun 2023**	5.53	14.8	76.2	751	7.69
SW022	**13 Jun 2023**	4.91	14.5	82.3	964	7.5
SW024	**20 Sep 2016**	7.88	17.8	35.5	1,854	
SW024	**19 Nov 2019**	4.96	30.8	41.7	2,845	7.29
SW024	**14 Oct 2020**	3.47	25	-58	6,898	7.48
SW024	**23 Sep 2022**	6.55	15.4	5.1	1,332	7.53
SW025	**13 Jun 2019**	7.49	13.4	165.4	2,870	6.8
SW025	**14 Jun 2019**	5.47	15.1	137.1	2,638	6.62
SW025	**15 Jun 2019**	7.54	14	155.9	2,468	6.68
SW025	**16 Jun 2019**	6.18	14	147.3	2,466	6.71
SW025	**17 Jun 2019**	7.15	13.4	165.4	2,172	6.75
SW025	**25 Oct 2019**	7.02	19.9	99.1	348.6	8.67
SW025	**02 Jul 2020**	8.65	15.3	-148.8	204.8	7.66
SW025	**03 Jul 2020**	7.04	16.2	95.8	254.4	6.94
SW025	**04 Jul 2020**	4.1	13.2	34.7	204	5.94
SW025	**12 Oct 2020**	7.35	22.9	3.6	340.8	6.37

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
SW025	**21 Jun 2022**	3.77	17.2	84.9	203.1	6.95
SW025	**22 Jun 2022**	3.8	15.9	105.7	216.9	7.31
SW025	**23 Jun 2022**	2.41	16.3	73.8	228.5	6.73
SW025	**24 Jun 2022**	3.25	16.5	74.8	210.3	6.95
SW025	**25 Jun 2022**	3.26	14.5	60.3	232	7.13
SW025	**20 Sep 2022**	3.55	18.5	-128	229.8	7.07
SW025	**09 Jun 2023**	3.35	18	74.8	206.2	7.25
SW025	**10 Jun 2023**	4.03	18.5	104.4	215	8.04
SW025	**11 Jun 2023**	5.17	16.8	-102.8	156.7	7.06
SW025	**12 Jun 2023**	3.45	16	76	258.7	7.03
SW025	**13 Jun 2023**	3.31	16.1	83.1	2,132	6.8
SW026	**20 Sep 2016**	8.84	16.8	41.3	1,798	
SW026	**07 Nov 2019**	5.64	30.6	-45.5	803	8.27
SW026	**22 Oct 2020**	8.79	20.8	59.8	2,362	7.15
SW026	**23 Sep 2022**	5.41	15.7	-45	1,333	7.07
SW028	**20 Sep 2016**	7.35	18.8	33.4	192.4	
SW028	**13 Jun 2019**	7.71	14	150.5	2,936	7.01
SW028	**14 Jun 2019**	5.4	13.8	134.3	2,851	6.77
SW028	**15 Jun 2019**	5.87	13.7	147.9	2,294	6.79
SW028	**16 Jun 2019**	5.68	14	153.6	2,531	6.68
SW028	**17 Jun 2019**	6.4	13.7	156.4	2,335	6.78
SW028	**02 Jul 2020**	7.47	12.9	168	1,030	7.18
SW028	**03 Jul 2020**	6.38	16.5	98.9	1,310	6.96
SW028	**04 Jul 2020**	4.68	11	45.7	957	5.55
SW028	**21 Jun 2022**	2.46	17.7	69.8	424.3	6.92
SW028	**22 Jun 2022**	2.07	16.5	93.6	475.4	6.96
SW028	**23 Jun 2022**	2.57	16.6	69.9	458.1	6.66
SW028	**24 Jun 2022**	1.96	16.5	68.4	400.3	6.75
SW028	**25 Jun 2022**	3.12	13.9	68.5	366.7	7.05
SW028	**20 Sep 2022**	3.3	16.9	28.2	183.3	6.65
SW028	**09 Jun 2023**	7.36	16.9	76.2	127.4	7.19
SW028	**11 Jun 2023**	6.24	15.3	-100.2	155.2	7.32
SW028	**12 Jun 2023**	7.22	13	76.5	1,945	6.85
SW028	**13 Jun 2023**	6.51	15.8	78.2	2,064	6.79
SW029	**20 Sep 2016**	6.56	17.2	42.1	642	
SW029	**30 Oct 2019**	1.01	17.8	23.4	2,743	6.58
SW029	**20 Sep 2022**	5.47	17.7	-5.2	777	6.63
SW032	**13 Jun 2019**	7.17	12.2	170.2	332.4	8.66
SW032	**14 Jun 2019**	7.93	12.4	140.2	460.7	7.49
SW032	**15 Jun 2019**	6.37	12.6	156.5	344.7	7.23
SW032	**16 Jun 2019**	7.99	12.9	150.5	340.4	7.56
SW032	**17 Jun 2019**	8.51	12.5	171.2	398.9	7.6
SW032	**30 Oct 2019**	6.54	23.8	95.2	996	8.4
SW032	**06 May 2020**	14.32	16.1	3.7	337.4	8.16
SW032	**30 Jun 2020**	8.09	16.1	167.7	392.2	7.25
SW032	**04 Jul 2020**	5.5	12.1	41	324.8	6.22
SW032	**22 Oct 2020**	6.69	22.8	96.8	915	8.04
SW032	**19 Apr 2021**	3.04	17.5	33.3	799	7.01
SW032	**19 Apr 2022**	3.59	21.2	65.2	667	7.18
SW032	**21 Jun 2022**	5.79	14.6	86.4	568.1	8.77
SW032	**22 Jun 2022**	6.05	12.3	112.8	537.5	8.95
SW032	**23 Jun 2022**	5.27	13.4	72.9	626.5	7.6
SW032	**24 Jun 2022**	5.58	13.7	86.5	602.7	7.7
SW032	**25 Jun 2022**	5.62	11.2	84.6	572.8	7.6
SW032	**19 Sep 2022**	6.9	16.8	-46.3	642	6.93
SW032	**12 Apr 2023**	4.28	19.6	84.5	528	7.22
SW032	**09 Jun 2023**	5.58	15	-42.3	530	7.51
SW032	**10 Jun 2023**	4.27	14.6	126.5	414	7.53
SW032	**11 Jun 2023**	6.15	14.3	-103.1	411.2	7.32
SW032	**12 Jun 2023**	6.21	12.5	78.2	470	7.44
SW032	**13 Jun 2023**	6.14	13.3	77.2	465.1	7.55
SW034	**13 Jun 2019**	7.58	12.6	167.5	336.2	8.25
SW034	**14 Jun 2019**	6.63	12.3	126	355	7.51
SW034	**15 Jun 2019**	6.88	12.6	153.5	330.7	7.25
SW034	**16 Jun 2019**	6.59	12.9	156.1	337.7	6.93
SW034	**17 Jun 2019**	7.58	12.4	169.7	330.4	6.83
SW034	**30 Oct 2019**	4.2	21	67.8	472.2	7.38
SW034	**07 May 2020**	5.32	16.3	73	352.3	6.29
SW034	**02 Jul 2020**	5.64	14	142.5	239.9	7.44
SW034	**03 Jul 2020**	6.18	14.8	98.6	324.2	7.22
SW034	**04 Jul 2020**	2.86	12.9	38.6	263.3	6.03
SW034	**22 Oct 2020**	4.23	22	84.9	482.8	7.26
SW034	**21 Jun 2022**	6.22	14.4	97.4	547	7.98
SW034	**22 Jun 2022**	6.15	12.9	107.1	554.2	8.25
SW034	**23 Jun 2022**	5.22	13.6	68.6	530.4	7.6
SW034	**24 Jun 2022**	5.15	13.9	82.2	508.4	7.64
SW034	**25 Jun 2022**	5.23	11.8	58.7	515.9	7.58
SW034	**19 Sep 2022**	6.68	16.2	13	577	6.64
SW034	**12 Apr 2023**	2.5	20.4	96.1	738	6.86
SW034	**09 Jun 2023**	6.42	15.1	2.7	439.2	7.59
SW034	**10 Jun 2023**	3.28	15.6	128.8	283.7	7.41
SW034	**11 Jun 2023**	4.88	15	-103.6	171.7	7.24
SW034	**12 Jun 2023**	3.66	14	73.7	244	7.25
SW034	**13 Jun 2023**	2.83	13.8	79.1	285.3	7.1
SW035	**30 Oct 2019**	6.94	20.3	-35.3	1,038	7.07
SW035	**06 May 2020**	7.1	15.4	29.1	328.2	6.61
SW035	**22 Oct 2020**	3.2	22.2	-16.1	761	6.64
SW035	**19 Sep 2022**	6.74	16.3	-22.1	565	7.18
SW035	**12 Apr 2023**	6.14	20	-17.7	642	6.72
SW036	**13 Jun 2019**	6.33	16.2	112.7	339.5	7.66
SW036	**14 Jun 2019**	6.75	15.5	114.8	337.8	7.71
SW036	**15 Jun 2019**	6.83	16.2	128.7	347.9	7.56
SW036	**16 Jun 2019**	6.42	15.6	149.1	364.2	7.32
SW036	**17 Jun 2019**	8.02	15.6	148.8	349.8	7.77
SW036	**07 Nov 2019**	3.3	29.5	-38.7	2,302	7.19

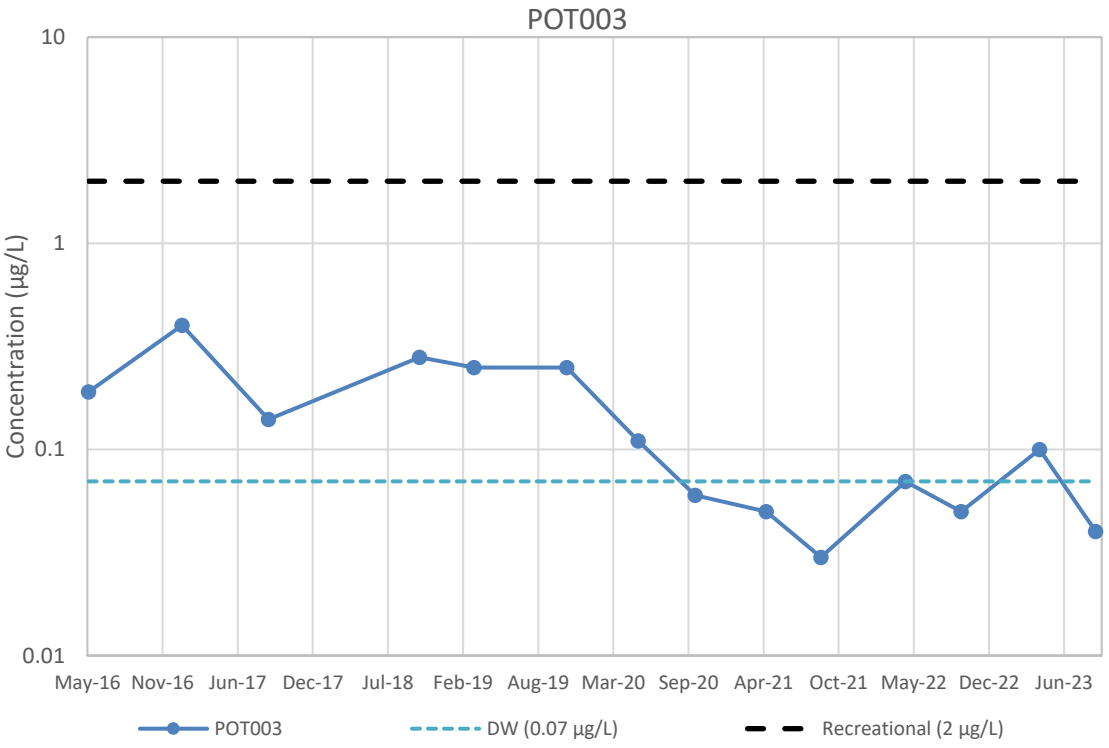
		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
SW036	01 Jul 2020	9.1	16.1	85.3	380.2	7.34
SW036	02 Jul 2020	9.67	14.6	89.4	379.2	7.32
SW036	03 Jul 2020	5.87	15.7	23	982	5.92
SW036	04 Jul 2020	2.37	13	-3.5	1,276	6.72
SW036	12 Oct 2020	5.56	19.3	110.6	598	7.28
SW036	21 Jun 2022	6.14	17	110.1	456.2	7.49
SW036	22 Jun 2022	5.14	15.4	95.2	499.7	7.56
SW036	23 Jun 2022	5.89	16.5	71.8	525.2	7.64
SW036	24 Jun 2022	6.8	17.5	61.7	428.3	7.19
SW036	25 Jun 2022	6.29	14.6	75.1	517.9	7.87
SW036	20 Sep 2022	3.54	20.9	38.5	673	6.23
SW036	09 Jun 2023	3.44	16.7	76.9	347.6	7.15
SW036	10 Jun 2023	5.09	15.6	-109	494	7.36
SW036	11 Jun 2023	4.9	15.7	-108.7	493	7.35
SW036	12 Jun 2023	3.31	15.2	89.3	319.9	7.22
SW036	13 Jun 2023	25.8	14.2	57.5	483.4	7.15
SW037	27 Oct 2016	5.49	22	69.1	1,770	7.28
SW037	07 Nov 2019	3.73	28.8	-38.3	482.7	7.64
SW037	12 Oct 2020	3.89	18.6	110	573	6.84
SW037	20 Sep 2022	6.53	19.7	38.2	1,404	7.03
SW038	13 Jun 2019	6.88	16.4	125.6	635.3	7.5
SW038	14 Jun 2019	6.46	15.2	119.2	328.8	7.36
SW038	15 Jun 2019	6.66	16.3	129	337	7.35
SW038	16 Jun 2019	6.62	15.4	147.5	327.2	7.25
SW038	17 Jun 2019	8.33	14.8	149.8	338.1	7.54
SW038	07 Nov 2019	4.39	27.7	-23.5	692	7.81
SW038	01 Jul 2020	7.76	15.8	81.8	842	7.02
SW038	02 Jul 2020	9.76	14	99.1	376.4	7.31
SW038	03 Jul 2020	7.5	14.3	21.8	341.2	6.4
SW038	04 Jul 2020	9.99	12.9	-25.3	387	7.45
SW038	12 Oct 2020	7.45	19.9	1,059	570	7.54
SW038	21 Jun 2022	4.73	17.2	118.9	1,927	7.09
SW038	22 Jun 2022	4.54	18.1	102.1	1,988	7.15
SW038	23 Jun 2022	3.25	15.9	85.5	1,979	7.23
SW038	24 Jun 2022	6.1	20.8	52.1	1,452	6.77
SW038	25 Jun 2022	1.79	18	73.5	1,926	6.76
SW038	20 Sep 2022	6.54	16.3	69	1,143	6.95
SW038	20 Oct 2022	5.16	18.6	-32.4	831	7.95
SW038	09 Jun 2023	4.04	16.5	76.8	347.8	7.15
SW038	10 Jun 2023	4.55	15.8	-107	495	7.35
SW038	11 Jun 2023	4.37	15.8	-105	492	7.34
SW038	12 Jun 2023	33.4	15	88.2	3,250	7.23
SW038	13 Jun 2023	2.61	14.9	60	475.6	7.27
SW042	26 Oct 2016	5.82	21.8	75.9	2,342	7.32
SW042	19 Nov 2019	4.41	27.7	45.5	1,193	7.22
SW042	14 Oct 2020	3.72	25.9	-77.9	4,382	7.62
SW042	23 Sep 2022	6.83	16.3	-6.8	1,351	7.68
SW046	22 Oct 2019	1.33	16.8	-11.2	928	5.88
SW046	12 Oct 2020	4.7	24.2	43.9	659	6.32
SW046	19 Sep 2022	6.54	14.4	-1.7	832	7.16
SW047	24 Aug 2017	6.17	16.6	80.3	1,291	7.18
SW047	22 Oct 2019	5.19	22.9	-69.6	1,909	6.96
SW047	22 Oct 2020	5.1	24.1	137.3	2,473	7.21
SW047	08 Oct 2021	8.67	18.5	78.8	1,643	7.41
SW047	20 Sep 2022	6.08	15.8	57.9	1,583	6.93
SW048	24 Aug 2017	6.33	16.1	84.7	1,227	7.27
SW048	13 Jun 2019	8.15	14.3	152.7	2,155	7.11
SW048	14 Jun 2019	7.7	14.2	136.4	2,637	7.04
SW048	15 Jun 2019	8.12	14	152.6	2,425	6.92
SW048	16 Jun 2019	7.41	13.9	154.2	2,452	6.84
SW048	17 Jun 2019	8.22	14.2	158.2	2,584	6.85
SW048	22 Oct 2019	10.08	22.7	-83.5	2,143	7.21
SW048	30 Jun 2020	8.22	14.4	169.5	1,627	6.69
SW048	01 Jul 2020	8.27	15	87.1	1,416	7.07
SW048	02 Jul 2020	8.79	12.1	72.8	1,632	7.09
SW048	03 Jul 2020	7.7	11.6	-53.3	1,439	5.6
SW048	04 Jul 2020	84.4	11.9	79.4	2,115	7.28
SW048	21 Jun 2022	6.55	16	109.2	1,860	7.35
SW048	22 Jun 2022	7.77	14.8	109	1,952	7.78
SW048	23 Jun 2022	5.44	16.1	73.2	2,045	7.24
SW048	24 Jun 2022	4.42	16.3	-2.9	1,677	6.95
SW048	25 Jun 2022	7.8	13.9	86.3	2,142	7.5
SW048	21 Sep 2022	8.83	17.5	-35.3	1,240	7.13
SW048	09 Jun 2023	5.39	14.6	116.1	947	7.94
SW048	10 Jun 2023	5.37	14.9	-111.5	1,860	7.28
SW048	11 Jun 2023	5.06	15	-111.8	1,859	7.27
SW048	12 Jun 2023	3.77	13.6	100.4	1,022	7.18
SW049	24 Aug 2017	6.18	18.6	82.5	1,291	7.23
SW049	13 Jun 2019	6.69	14.4	39.8	219	7.41
SW049	14 Jun 2019	5.97	14.6	124.4	244.3	7.71
SW049	15 Jun 2019	6.33	14.7		260.1	7.61
SW049	16 Jun 2019	4.04	13.6	151.1	295.1	7.22
SW049	17 Jun 2019	7.49	14	163.4	2,669	6.88
SW049	04 Dec 2019	3.61	34	-14.6	1,230	7.95
SW049	30 Jun 2020	8.19	14.6	150.8	1,562	6.73
SW049	01 Jul 2020	80.3	15.1	90.8	1,539	6.76
SW049	02 Jul 2020	8.44	12.4	86.3	1,483	7.03
SW049	03 Jul 2020	5.93	10.8	-154.6	1,204	5.22
SW049	04 Jul 2020	9.16	12	92.4	2,008	7.41
SW049	22 Oct 2020	3.81	21.6	119.3	2,521	7.49
SW049	21 Jun 2022	4.65	16.3	107.4	387	7.41
SW049	22 Jun 2022	3.39	16.3	92.2	420.3	7.28
SW049	23 Jun 2022	4.16	16.3	56.9	421.3	7.41
SW049	24 Jun 2022	4.97	15.1	42.3	1,795	7.04
SW049	25 Jun 2022	12.4	14.7	78.1	571	8.57

		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
SW049	**21 Sep 2022**	7.36	18.8	-25.8	1,291	7.16
SW049	**09 Jun 2023**	3.92	14	101.2	761	7.98
SW049	**10 Jun 2023**	5.7	13.9	-149.3	2,828	7.54
SW049	**11 Jun 2023**	5.5	13.9	-147.6	2,826	7.52
SW049	**12 Jun 2023**	3.03	13	128.7	1,420	7.09
SW049	**13 Jun 2023**	2.9	12.9	142.2	2,078	7.02
SW050	**24 Aug 2017**	6.16	17	86.7	1,231	7.29
SW050	**08 Mar 2019**	1.57	21.1	53.4	1,013	5.93
SW050	**23 Oct 2019**	4.31	19.2	100.7	2,286	8.05
SW050	**06 May 2020**	5.45	16.9	77.5	1,734	6.77
SW050	**22 Oct 2020**	3.27	18.9	127.6	2,011	7.69
SW050	**21 Apr 2022**	4.7	20.3	-56	1,309	7.32
SW050	**21 Sep 2022**	9.26	18.2	-81.3	670	6.92
SW050	**11 Apr 2023**		20.4	2.1	1,588	7.23
SW052	**24 Aug 2017**	5.78	16	88.4	1,135	7.32
SW052	**08 Mar 2019**	0.82	22.1	69.1	892	6.75
SW052	**22 Oct 2019**	4.86	19.6	139.8	1,293	6.87
SW052	**06 May 2020**	7.56	17	68.3	1,106	6.92
SW052	**12 Oct 2020**	5.16	18	654	1,463	6.81
SW052	**20 Apr 2021**	1.5	16.8	71.6	941	6.91
SW052	**21 Apr 2022**	1.45	19.6	-219.7	857	6.91
SW052	**21 Sep 2022**	10.56	17.7	-30.3	1,198	6.45
SW052	**11 Apr 2023**	2.33	22.1	-84.6	854	7.25
SW053	**19 Nov 2019**	1.36	25.9	65.3	498.2	6.34
SW053	**14 Oct 2020**	17.4	22	60.4	509.1	6.49
SW053	**21 Sep 2022**	5.97	18.2	-21.1	436	6.87
SW055	**13 Jun 2019**	5.98	12.7	171.1	555	6.92
SW055	**14 Jun 2019**	5.08	12.9	132.4	562	7.11
SW055	**15 Jun 2019**	5.47	13.3	162.5	552	6.66
SW055	**16 Jun 2019**	4.91	14.2	152.5	550	6.67
SW055	**17 Jun 2019**	5.1	13	169.3	542	7.34
SW055	**19 Nov 2019**	3.4	23.6	100.4	516	6.87
SW055	**30 Jun 2020**	3.46	14.6	28.6	479	6.67
SW055	**01 Jul 2020**	3.19	14.6	26.5	479	6.55
SW055	**02 Jul 2020**	7.56	15.4	75.7	621	6.91
SW055	**03 Jul 2020**	4.79	12.9	22.7	481	6.37
SW055	**04 Jul 2020**	6.01	12.3	63.7	626	6.89
SW055	**14 Oct 2020**	2.04	22.1	-10.2	674	6.5
SW055	**21 Jun 2022**	2.27	18	83.9	659	6.71
SW055	**22 Jun 2022**	5.11	17.3	101.8	651	6.96
SW055	**23 Jun 2022**	3.38	16.7	66.4	647	6.68
SW055	**24 Jun 2022**	5.24	14.9	84.6	637	7.15
SW055	**25 Jun 2022**	6.1	12.4	88	635.4	7.25
SW055	**21 Sep 2022**	9.55	18.5	-45	459.7	6.86
SW055	**09 Jun 2023**	4.76	14.6	119.3	668	7.37
SW055	**10 Jun 2023**	2.61	16.4	-112.3	700	6.44
SW055	**11 Jun 2023**	2.42	16.5	-113.6	700	6.43
SW055	**12 Jun 2023**	4.94	14.7	83	3,612	6.59
SW055	**13 Jun 2023**	3.43	13.1	115.3	700	6.63
SW057	**22 Oct 2020**	3.88	24.1	61.2	611	7.02
SW057	**19 Sep 2022**	5.43	14.3	7.34	733	7.35
SW058	**13 Jun 2019**	7.92	17.2	129	651	7.75
SW058	**14 Jun 2019**	7.06	17.9	125.4	641	7.69
SW058	**15 Jun 2019**	8	17.6	107.6	624	7.63
SW058	**17 Jun 2019**	9.27	17.1	147.9	589	7.79
SW058	**28 Oct 2019**	6.62	29	122.9	639	7.81
SW058	**30 Jun 2020**	3.74	15.3	29.8	572	6.6
SW058	**01 Jul 2020**	3.54	15.2	26	572	6.65
SW058	**02 Jul 2020**	8.72	18.4	72.1	720	7.85
SW058	**03 Jul 2020**	6.77	14.9	30.3	572	6.59
SW058	**04 Jul 2020**	8.19	11.6	77.7	752	7.69
SW058	**12 Oct 2020**	5.36	27.5	1,041	834	8.24
SW058	**21 Jun 2022**	5	19.6	85.6	850	7.36
SW058	**22 Jun 2022**	5.61	16.4	93.2	854	7.42
SW058	**23 Jun 2022**	5.08	16.6	68.2	823	7.43
SW058	**24 Jun 2022**	5.6	15.5	87.7	835	7.4
SW058	**25 Jun 2022**	5.42	15.6	78.4	842	7.43
SW058	**19 Sep 2022**	5.42	19.6	-19.1	667	7.45
SW058	**09 Jun 2023**	3.38	16.1	101.7	824	7.51
SW058	**10 Jun 2023**	3.03	17.5	128	381	7.55
SW058	**11 Jun 2023**	4.44	15.9	-89.1	603	7.58
SW058	**12 Jun 2023**	4.16	15	98.6	342.1	7.75
SW058	**13 Jun 2023**	3.29	13	109.1	640	7.63
SW059	**28 Oct 2019**	6.48	32.7	111	602	8.02
SW059	**12 Oct 2020**	5.87	26.6	873	805	8.22
SW059	**19 Sep 2022**	4.72	20.3	20.3	670	7.26
SW060	**13 Jun 2019**	6.59	13.6	173.8	2,833	6.73
SW060	**14 Jun 2019**	5.13	16.8	53.4	2,721	6.78
SW060	**15 Jun 2019**	4.9	13.6	143.8	2,290	6.63
SW060	**16 Jun 2019**	6.09	13.7	144	2,457	6.74
SW060	**17 Jun 2019**	7.7	13.3	155.2	2,184	6.79
SW060	**07 Nov 2019**	5.32	32.3	-45.9	822	7.88
SW060	**30 Jun 2020**	2.27	14.8	32.5	477.75	6.16
SW060	**01 Jul 2020**	3.5	14.8	29.1	564	6.47
SW060	**02 Jul 2020**	9.14	17.3	84	736	7.7
SW060	**03 Jul 2020**	2.36	19.1	25.2	432.7	6.89
SW060	**04 Jul 2020**	8.04	12	73	739	7.63
SW060	**14 Oct 2020**	3.84	17.5	130.4	1,037	7.2
SW060	**21 Jun 2022**	4	17.8	70.2	851	7.27
SW060	**22 Jun 2022**	4.37	17.4	100.8	271.3	7.35
SW060	**23 Jun 2022**	4.44	16.7	69.8	866	7.46
SW060	**24 Jun 2022**	6.13	14.5	85	838	7.5
SW060	**25 Jun 2022**	6.01	14.8	83.9	839	7.44
SW060	**19 Sep 2022**	4.71	19	32.5	650	7.19
SW060	**09 Jun 2023**	3.1	16.2	97.2	836	7.49

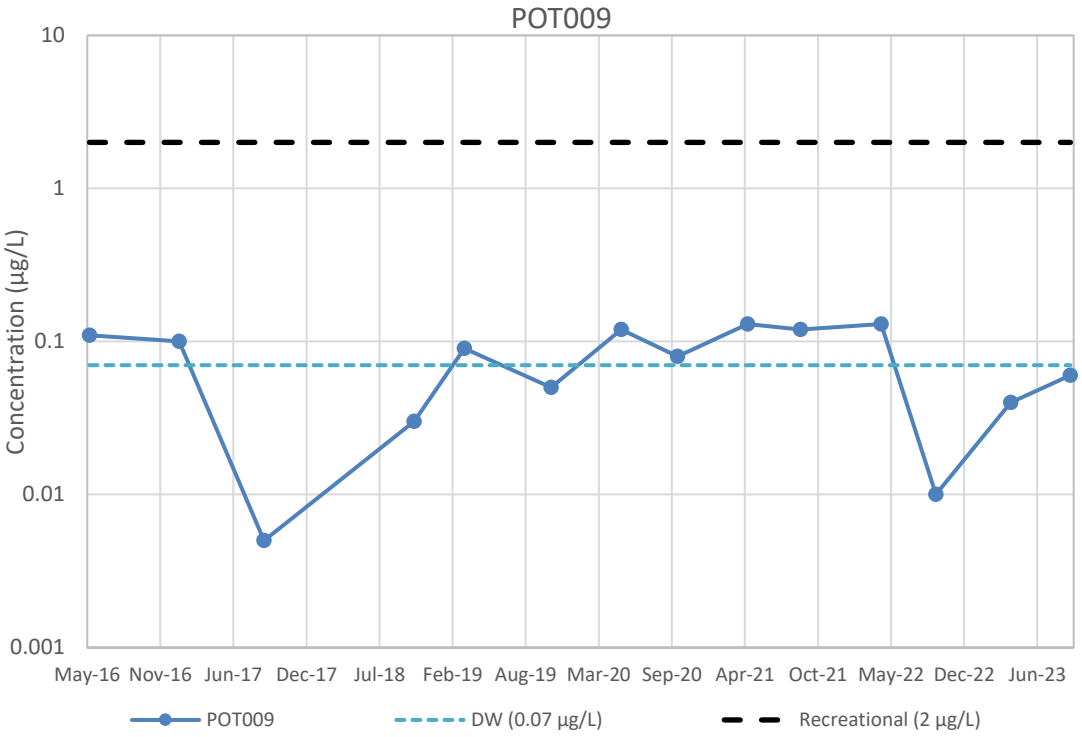
		Field				
		DO (Field)	Temperature (Field)	Redox Potential (Field)	Electrical Conductivity (field)	pH (Field)
		mg/L	°C	mV	µS/cm	pH Units
SW060	**10 Jun 2023**	4.22	17.9	145.5	691	7.65
SW060	**11 Jun 2023**	6.45	15.8	-77.7	605	7.57
SW060	**12 Jun 2023**	4	14.9	101.7	641	7.55
SW060	**13 Jun 2023**	2.4	13.1	124.1	704	7.58
SW066	**13 Jun 2019**	10.28	17	16.8	756	6.76
SW066	**04 Dec 2019**	4.12	31.3	7.8	4,112	8.09
SW066	**30 Jun 2020**	9.33	16.4	15.8	821	6.96
SW066	**01 Jul 2020**	9.85	16	66.1	813	6.95
SW066	**02 Jul 2020**	11.75	14.5	59.4	869	7.18
SW066	**03 Jul 2020**	8.25	12.9	10.2	655	5.97
SW066	**04 Jul 2020**	8.77	11.7	24	850	6.95
SW066	**22 Oct 2020**	6.53	28.9	62.3	1,117	9.1
SW066	**21 Jun 2022**	7.01	19.6	95.3	458.9	7.74
SW066	**22 Jun 2022**	9.1	19.2	87.7	499.5	8.35
SW066	**23 Jun 2022**	8.2	20.5	66.9	501.9	8.06
SW066	**24 Jun 2022**	5.99	16.3	51.7	557	7.04
SW066	**25 Jun 2022**	6.23	19.9	76.2	493.5	7.58
SW066	**21 Sep 2022**	20.21	24.3	-61.8	2,911	7.48
SW066	**09 Jun 2023**	4.36	15.2	106.8	793	7.41
SW066	**10 Jun 2023**	3	14.2	-133.6	925	7.12
SW066	**11 Jun 2023**	2.9	14.6	-130.4	924	7.11
SW066	**12 Jun 2023**	3.26	15.7	106.1	1,067	7.19
SW066	**13 Jun 2023**	3.85	14	98.3	1,000	7.2
SW067	**04 Dec 2019**	1.15	32.6	-65.5	1,500	7.53
SW067	**30 Jun 2020**	5.24	14.4	98.5	798	6.8
SW067	**01 Jul 2020**	7.39	16.9	75.1	861	6.72
SW067	**02 Jul 2020**	7.31	11.3	76.9	861	6.99
SW067	**03 Jul 2020**	11.17	10.5	5.7	673	5.76
SW067	**04 Jul 2020**	59.9	11.8	71.1	882	7.07
SW067	**22 Oct 2020**	7.35	21.8	98.3	926	8.1
SW067	**21 Sep 2022**	8.71	23.2	10.7	862	8.07
SW067	**09 Jun 2023**	3.81	14.9	114.3	871	7.48

PFOS+PFHxS graphs
Private Bores

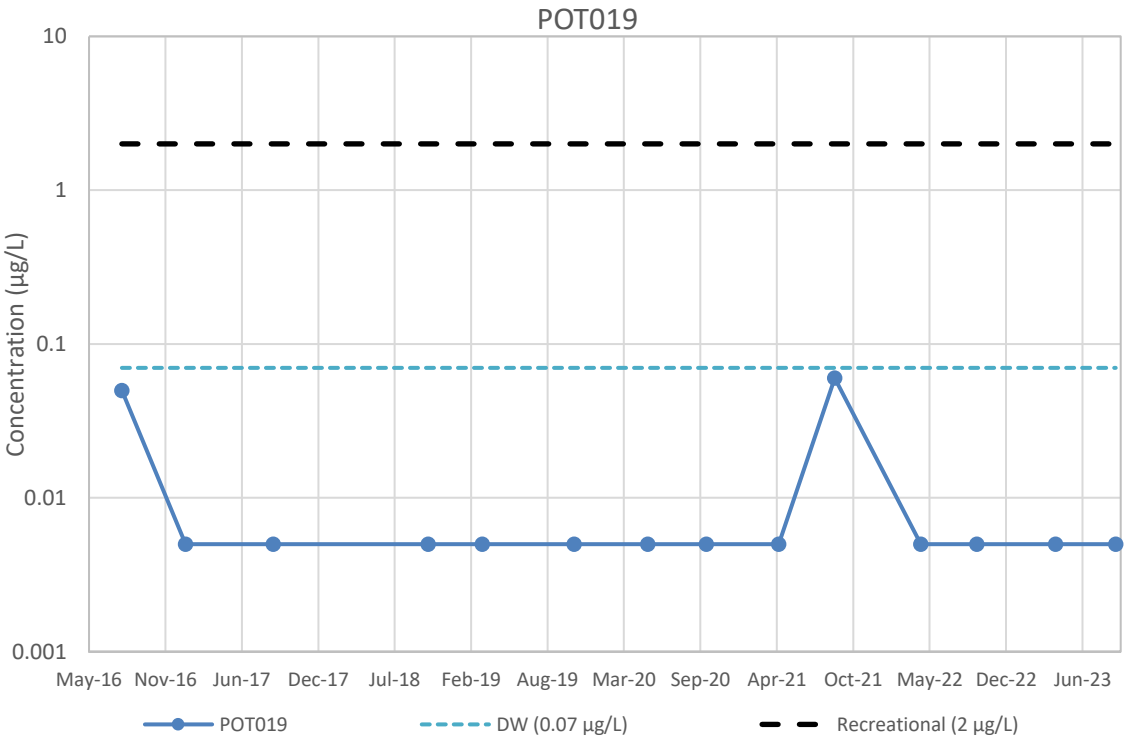
POT003 PFOS+PFHxS Concentration Trends



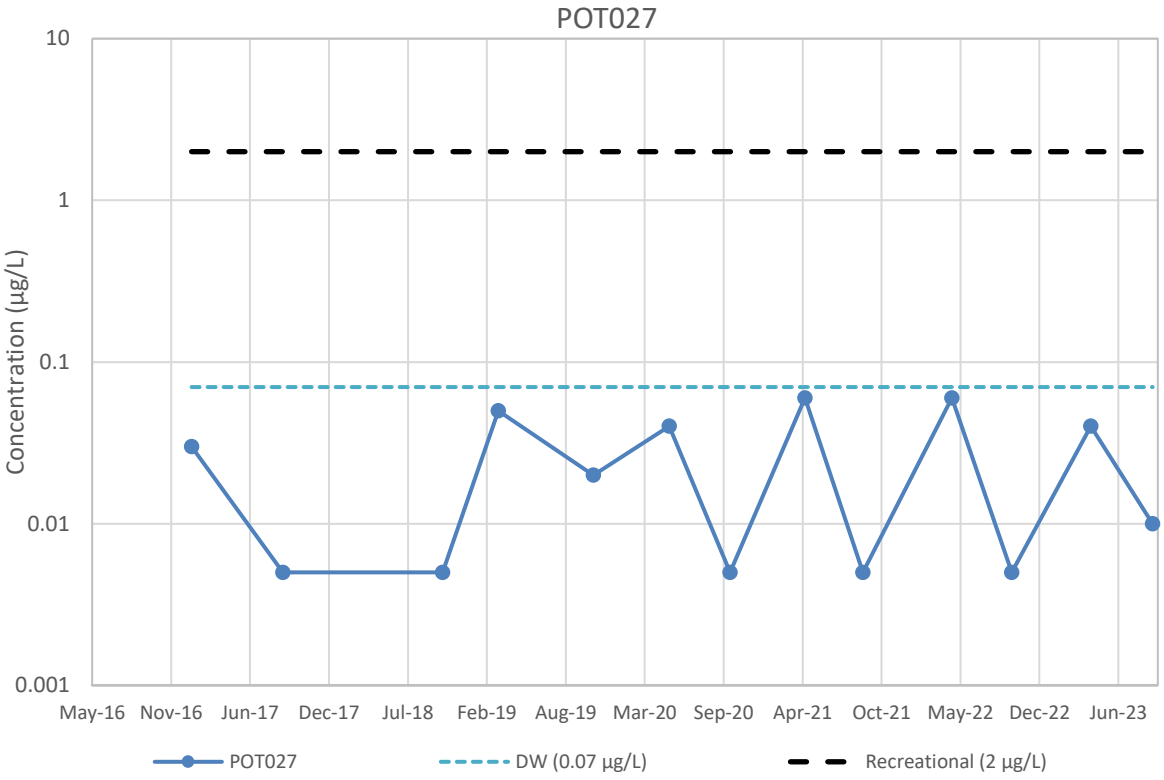
POT009 PFOS+PFHxS Concentration Trends



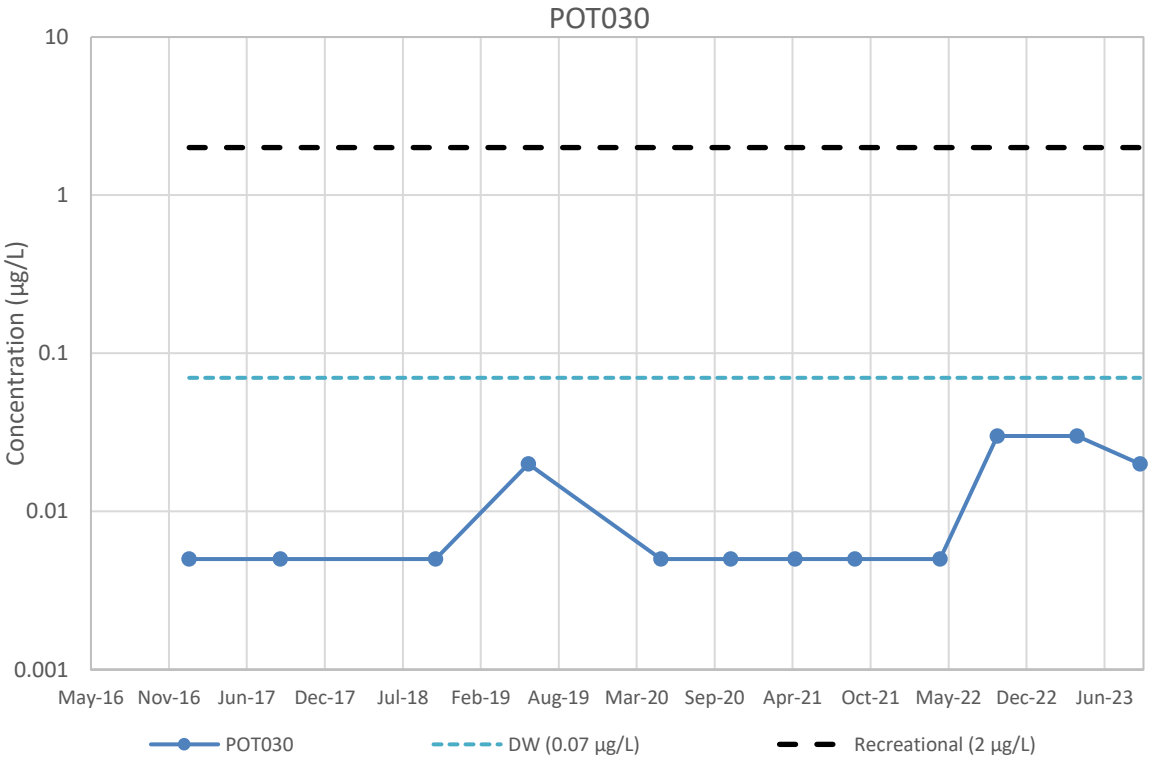
POT019 PFOS+PFHxS Concentration Trends



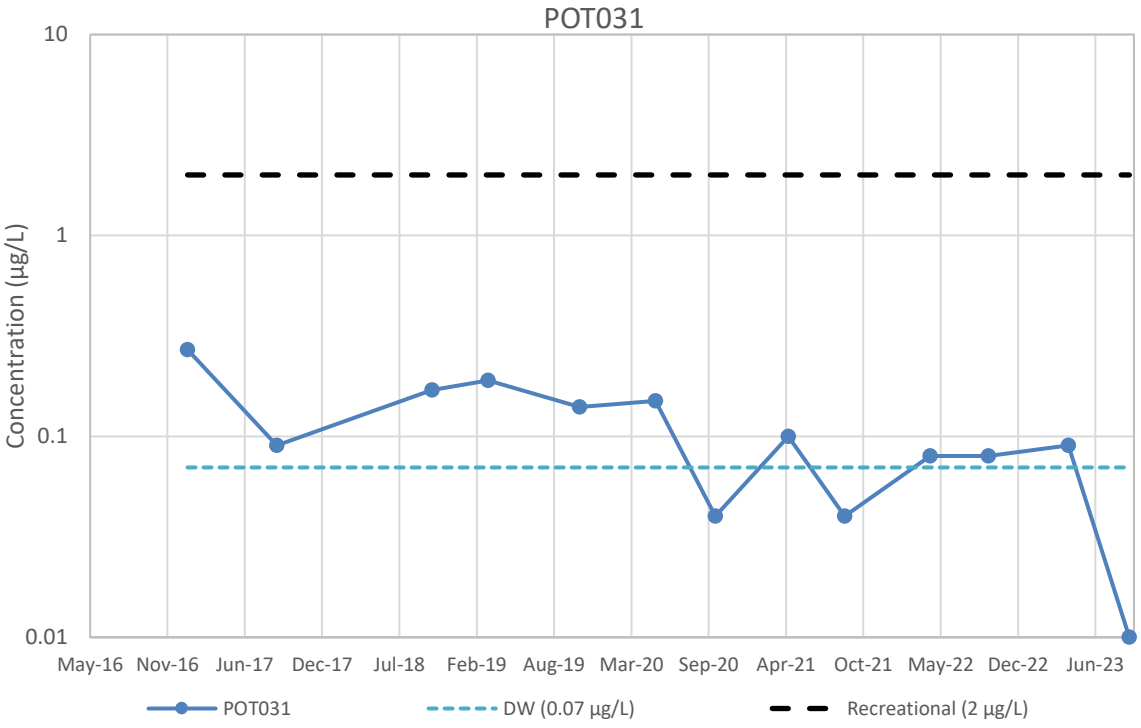
POT027 PFOS+PFHxS Concentration Trends



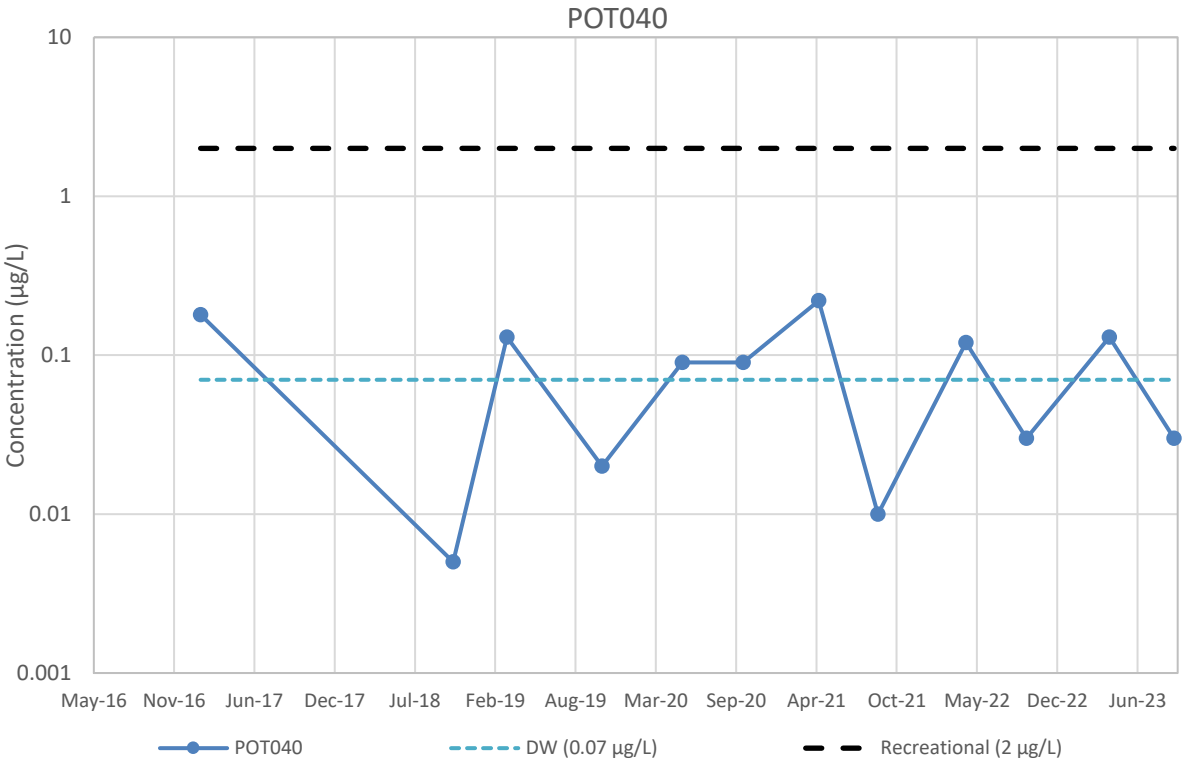
POT030 PFOS+PFHxS Concentration Trends



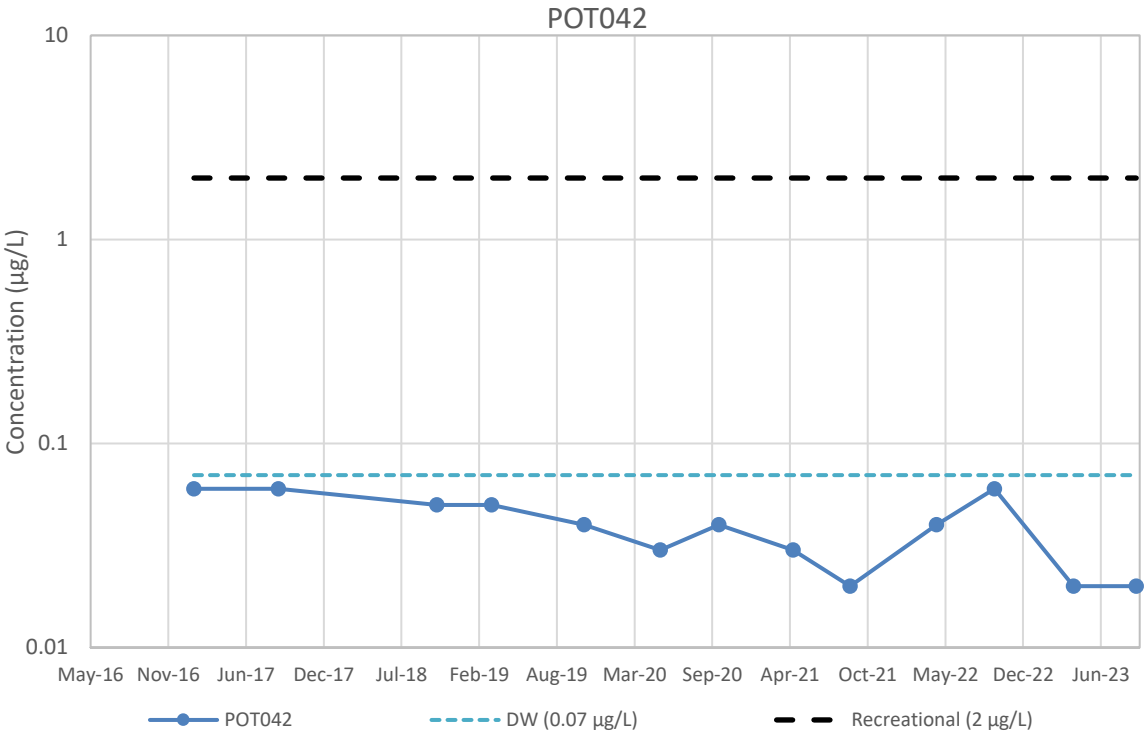
POT031 PFOS+PFHxS Concentration Trends



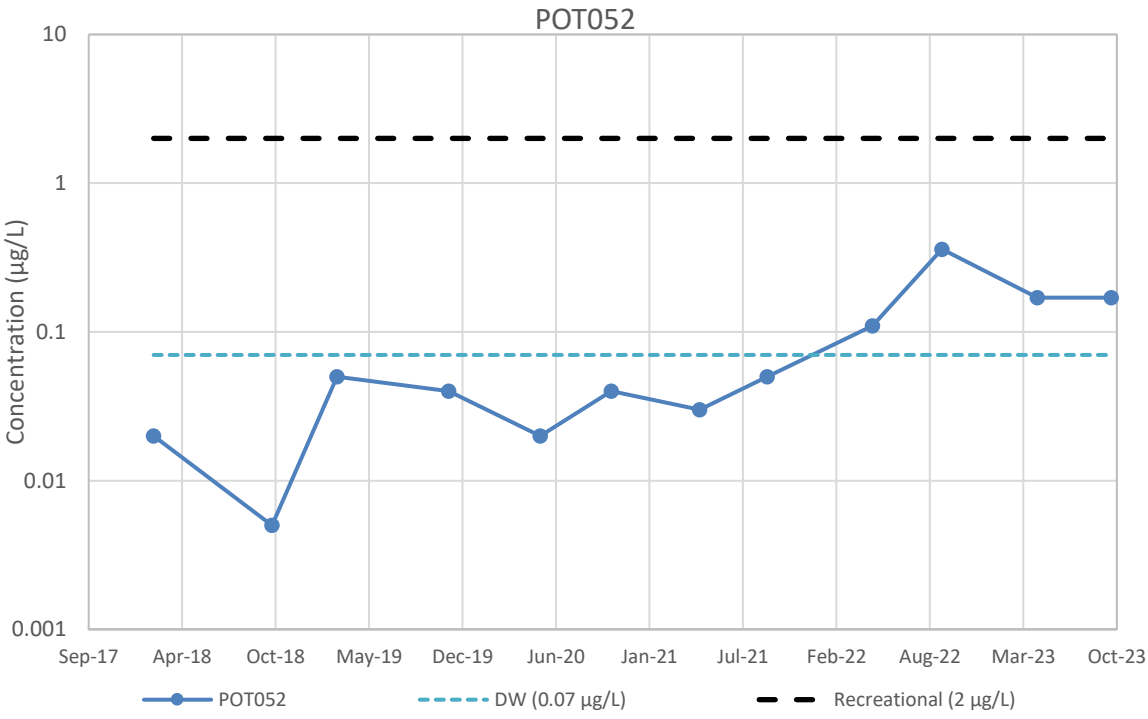
POT040 PFOS+PFHxS Concentration Trends



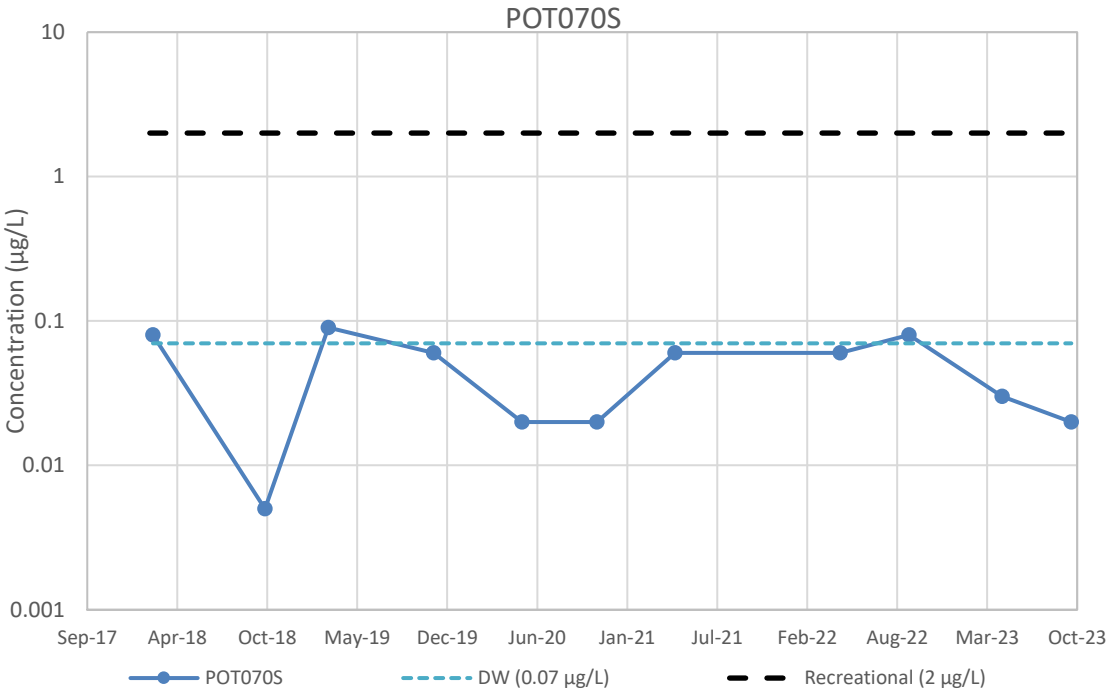
POT042 PFOS+PFHxS Concentration Trends



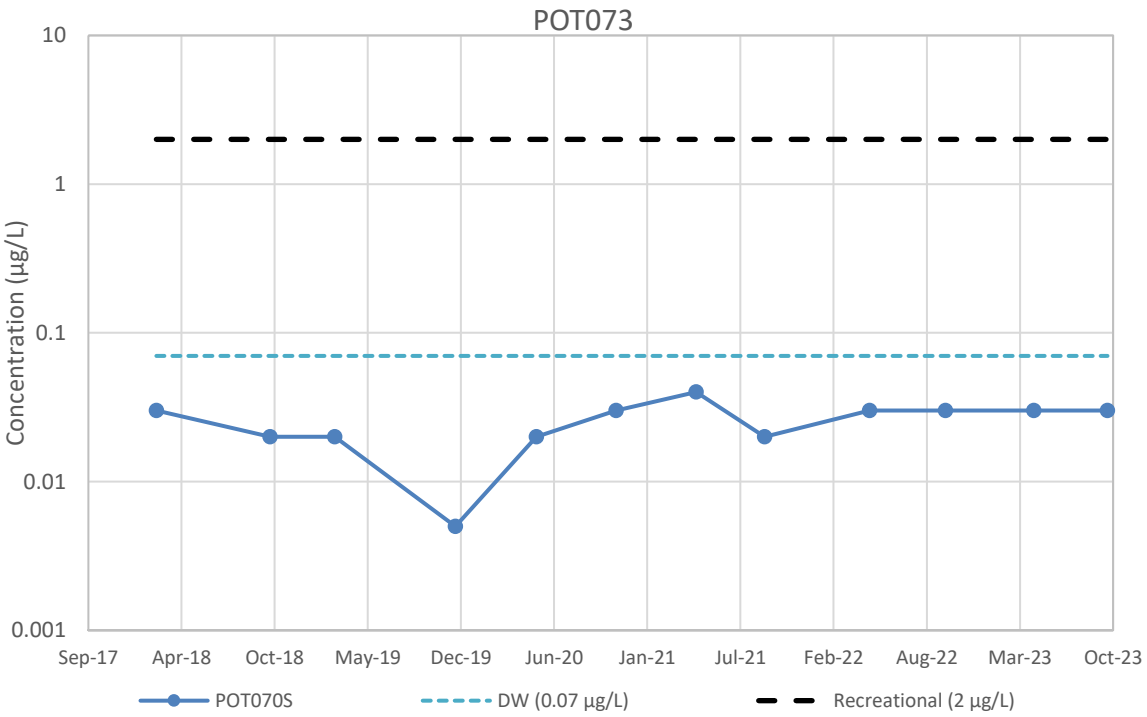
POT052 PFOS+PFHxS Concentration Trends



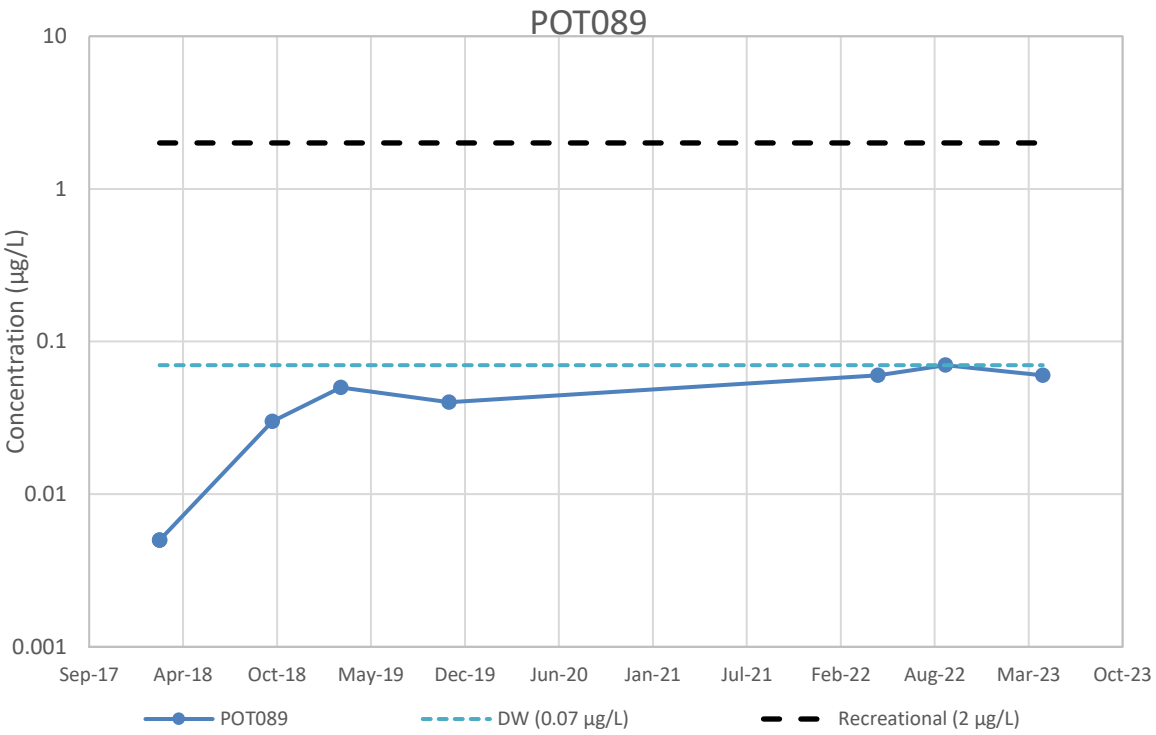
POT070S PFOS+PFHxS Concentration Trends



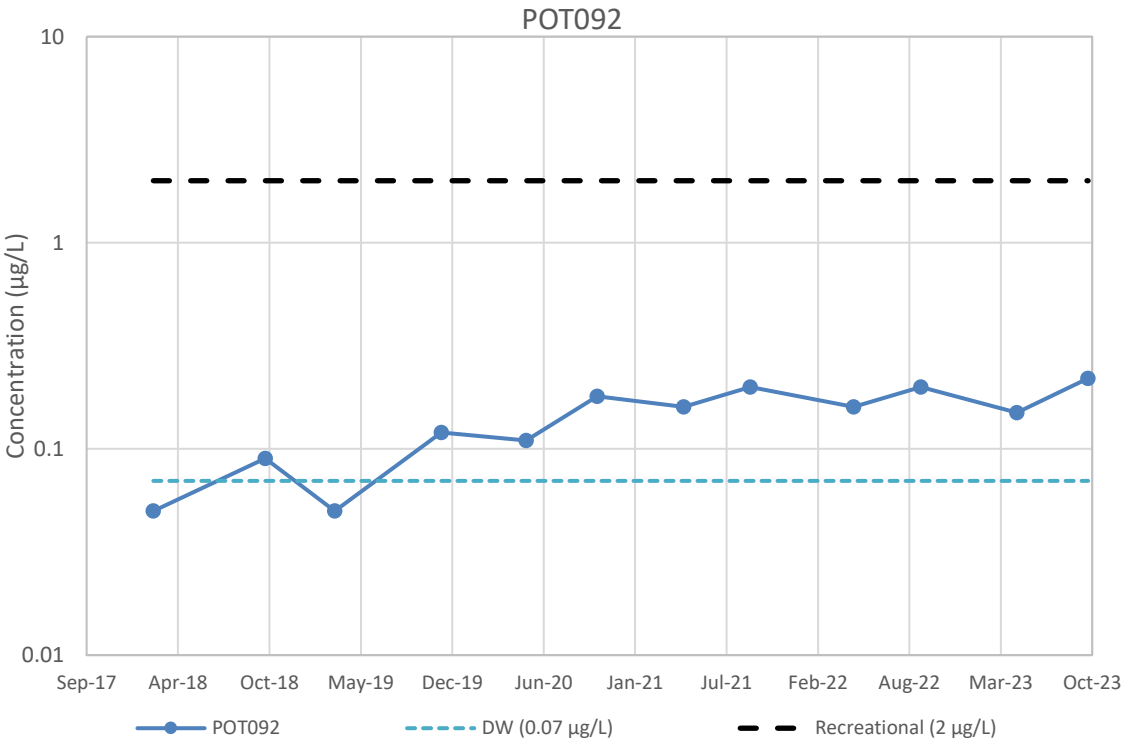
POT073 PFOS+PFHxS Concentration Trends



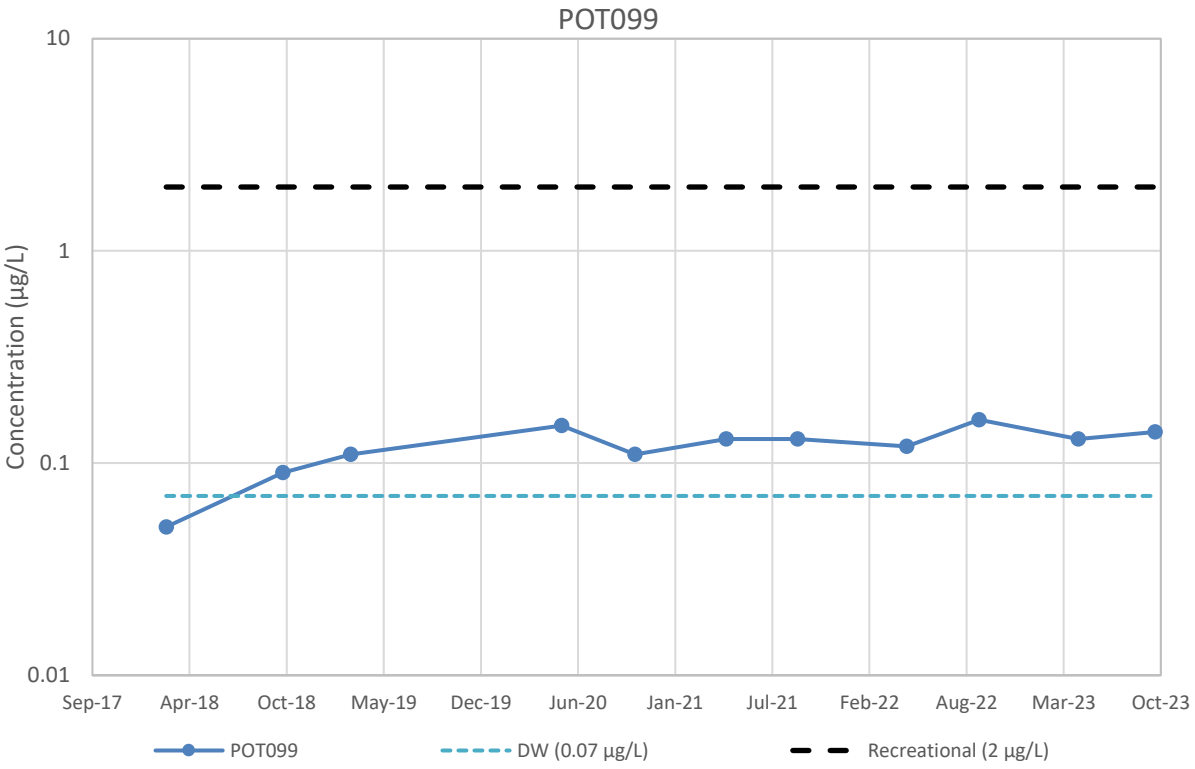
POT089 PFOS+PFHxS Concentration Trends



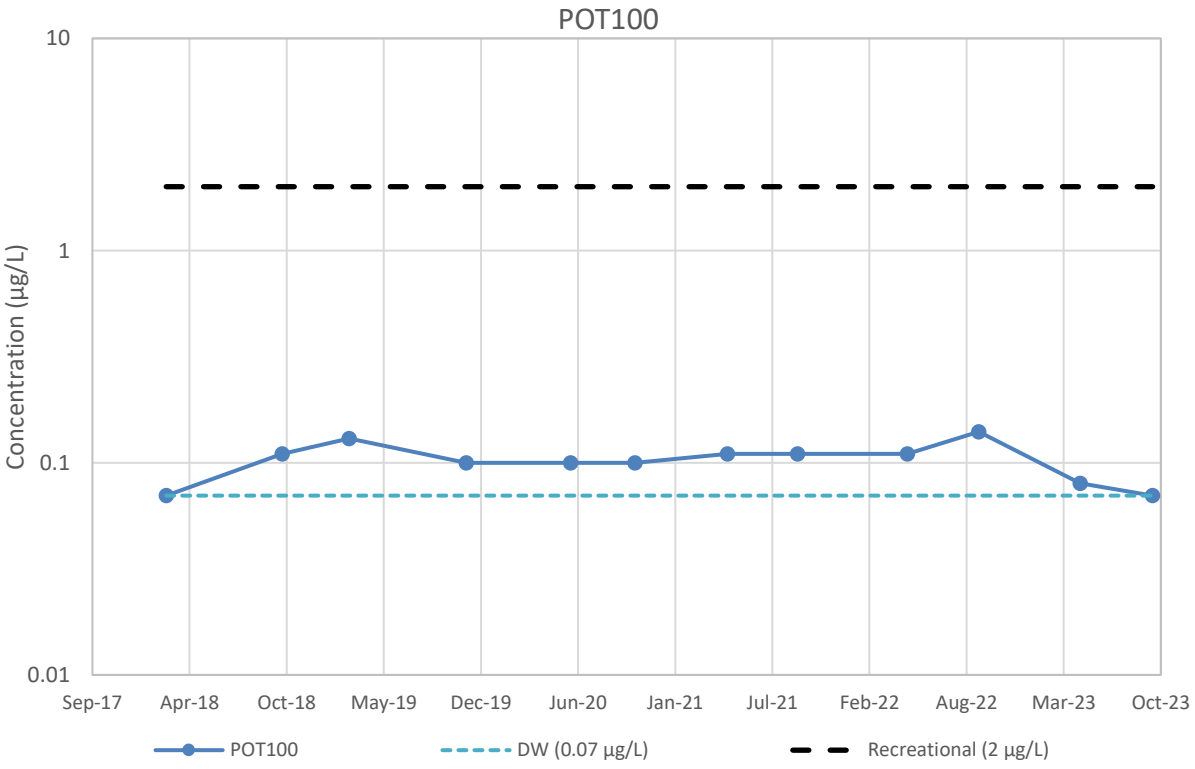
POT092 PFOS+PFHxS Concentration Trends



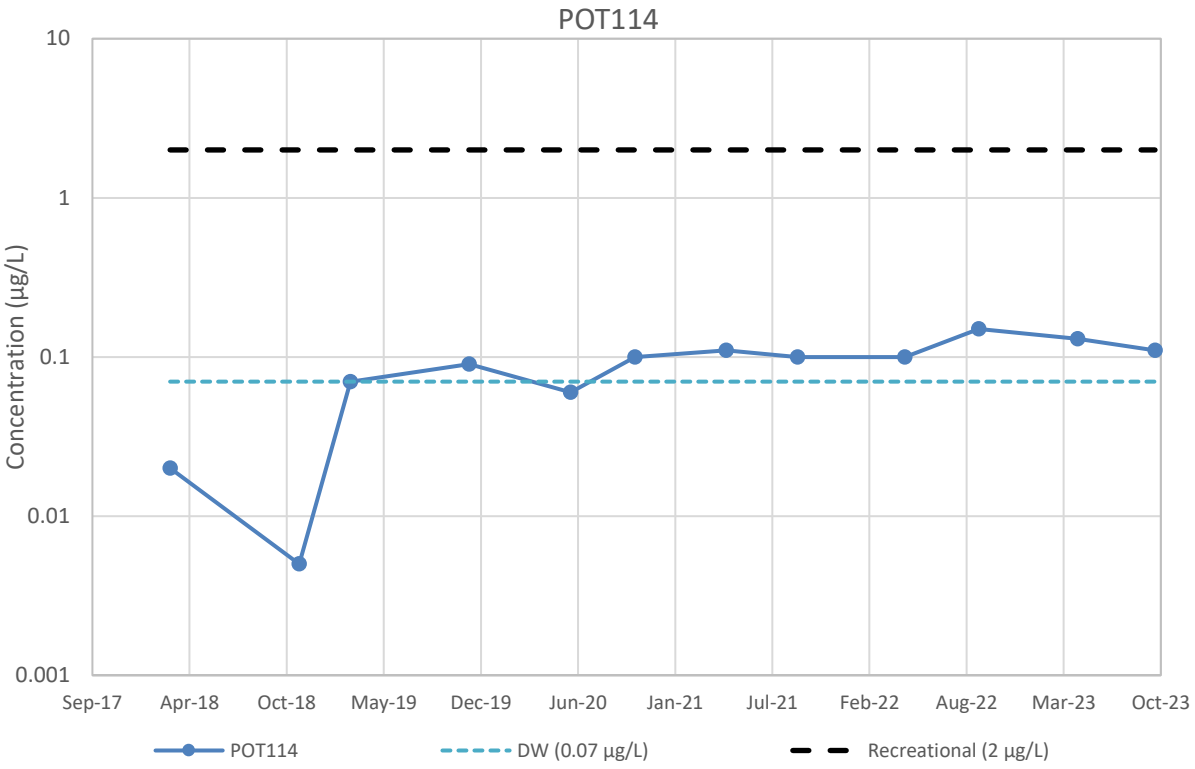
POT099 PFOS+PFHxS Concentration Trends



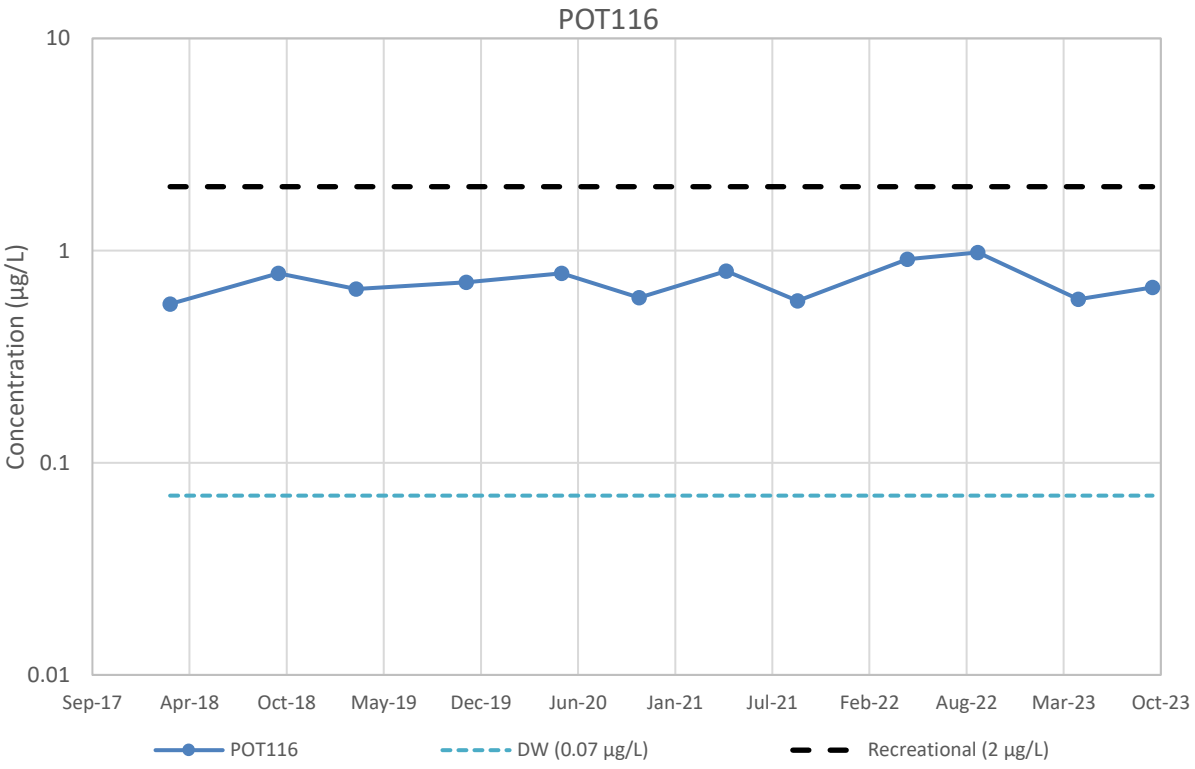
POT100 PFOS+PFHxS Concentration Trends



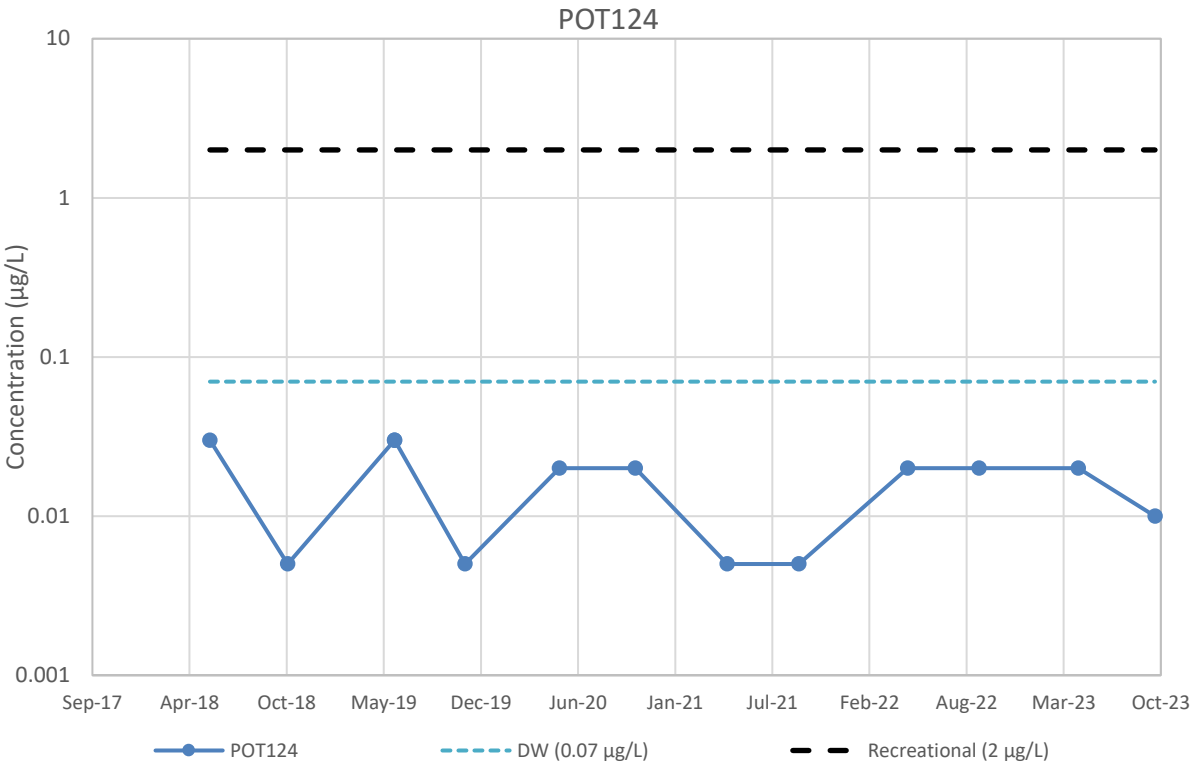
POT114 PFOS+PFHxS Concentration Trends



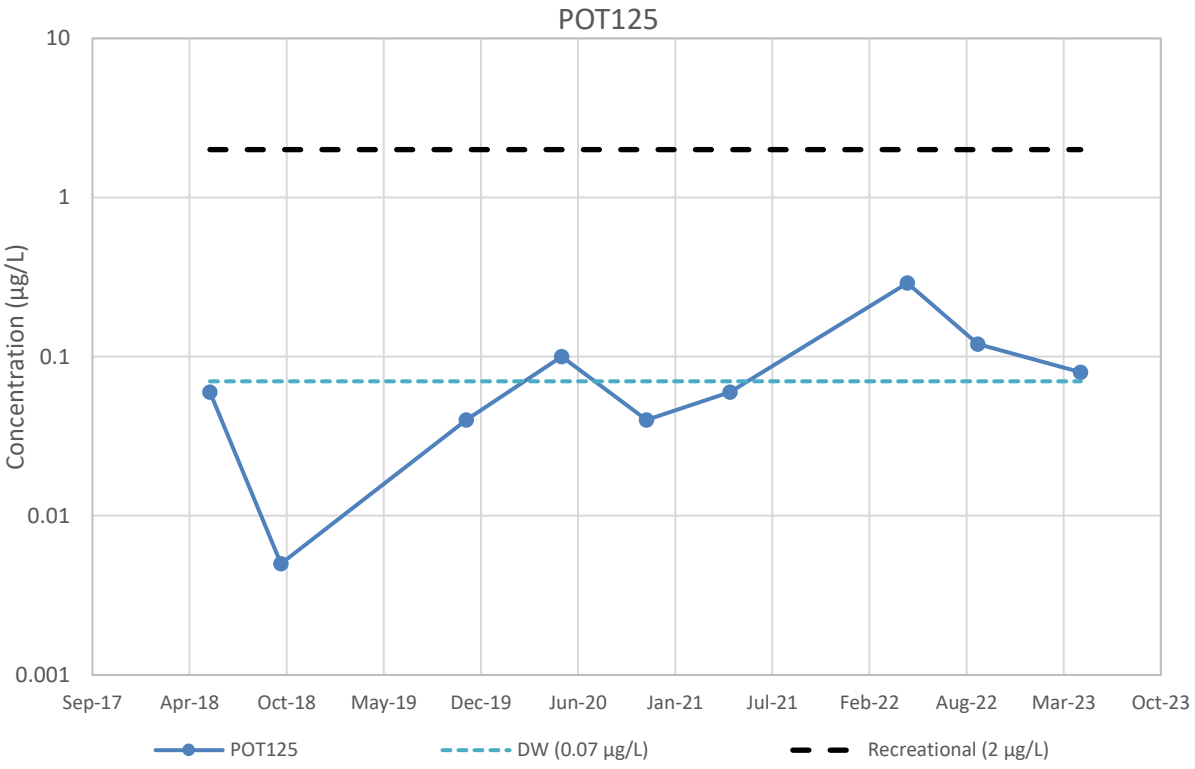
POT116 PFOS+PFHxS Concentration Trends



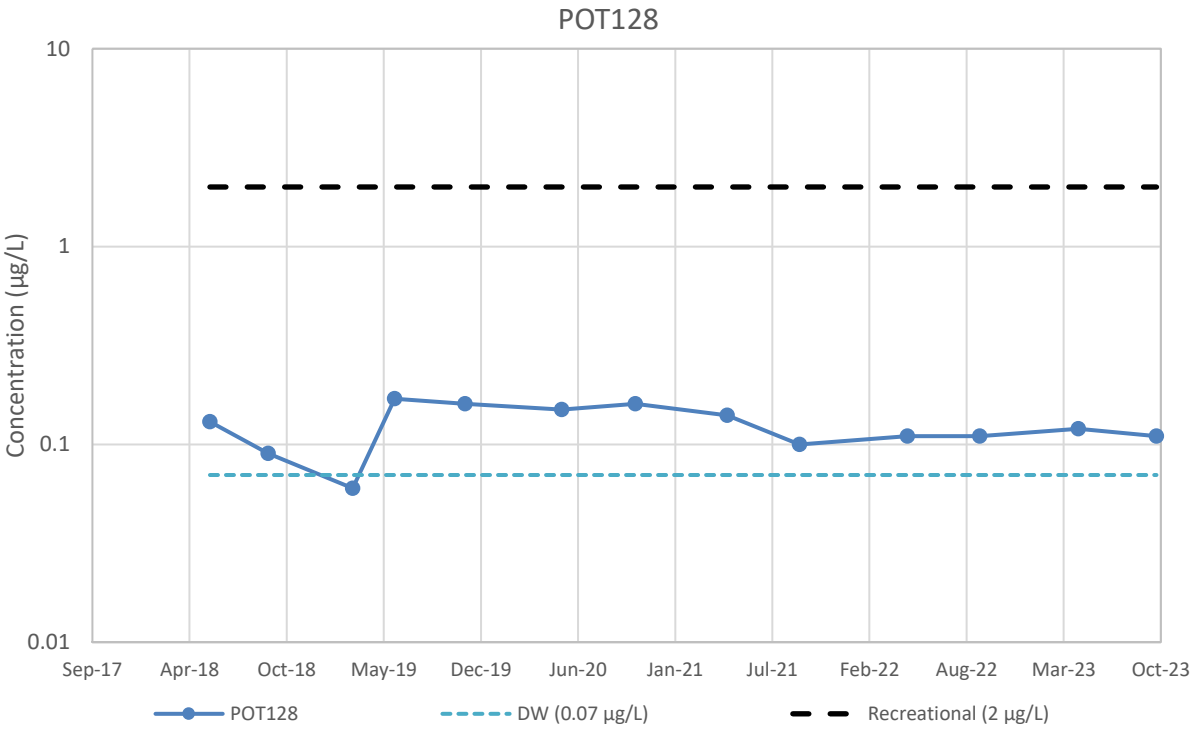
POT124 PFOS+PFHxS Concentration Trends



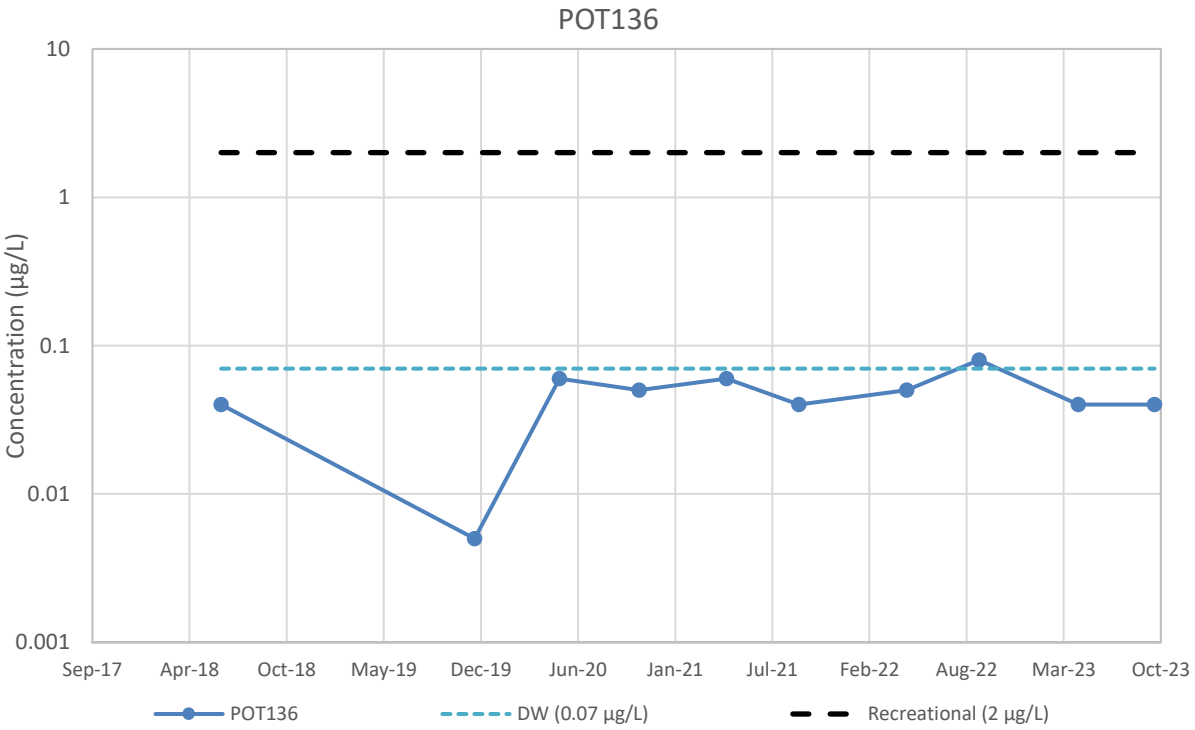
POT125 PFOS+PFHxS Concentration Trends



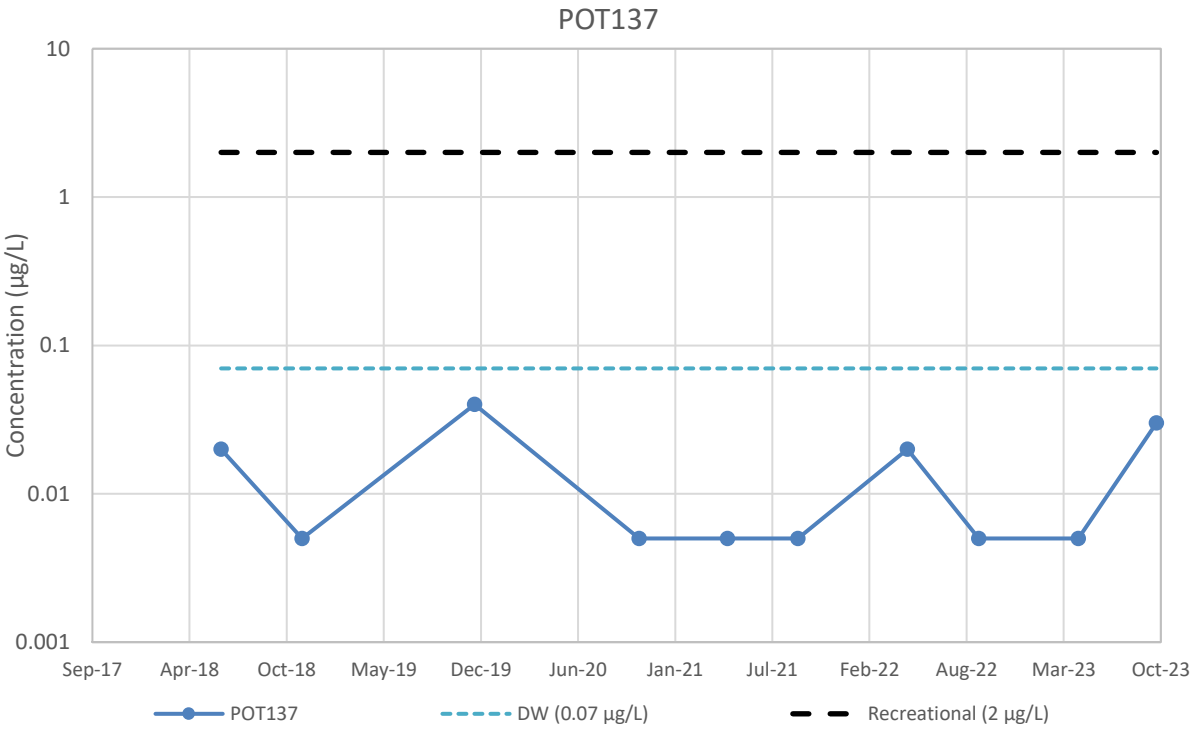
POT128 PFOS+PFHxS Concentration Trends



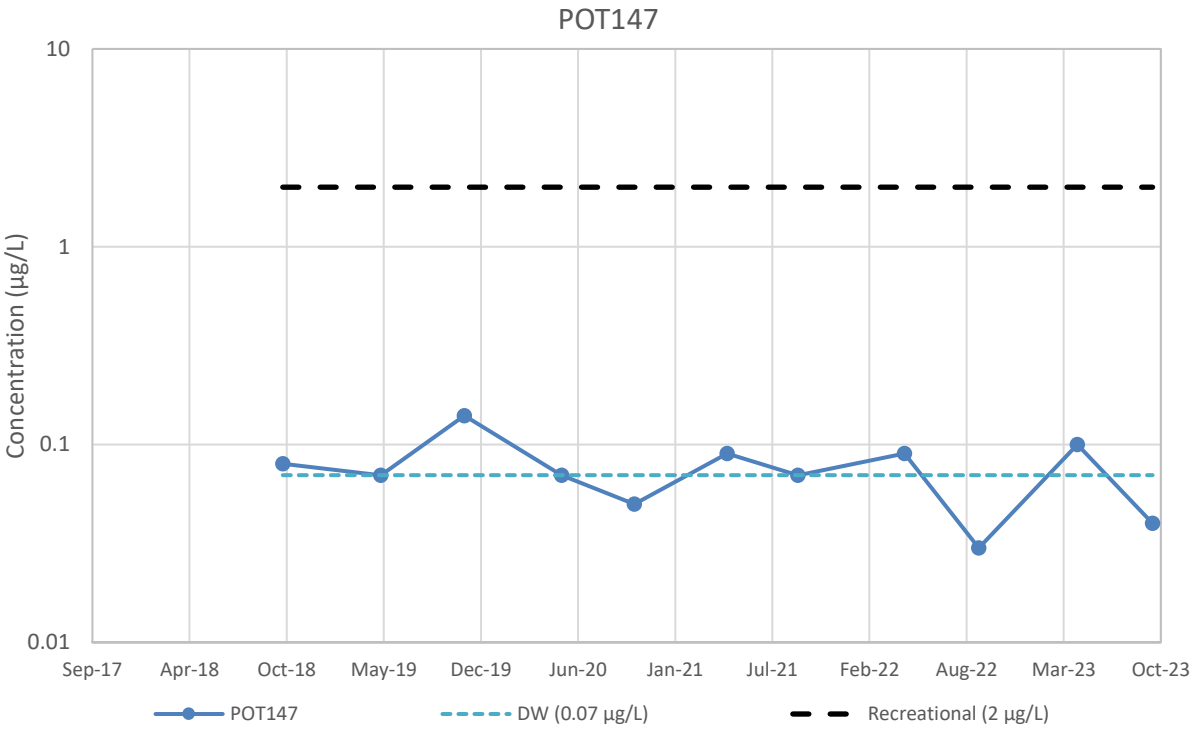
POT136 PFOS+PFHxS Concentration Trends



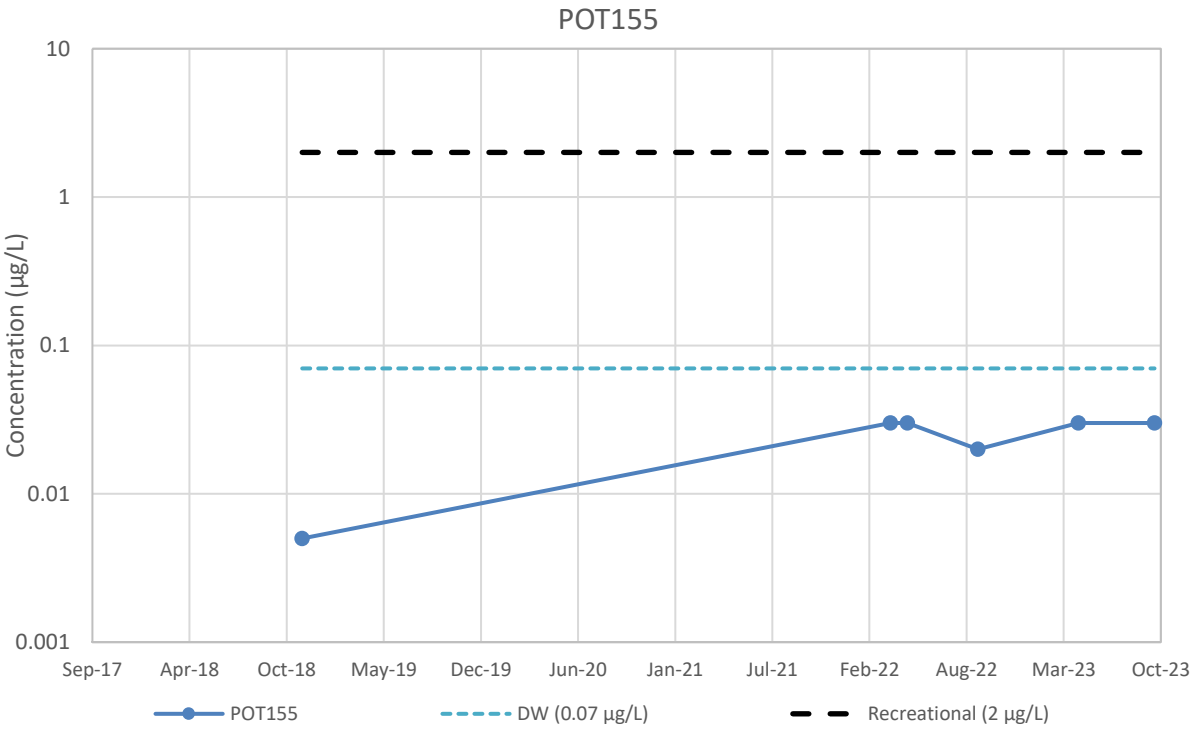
POT137 PFOS+PFHxS Concentration Trends



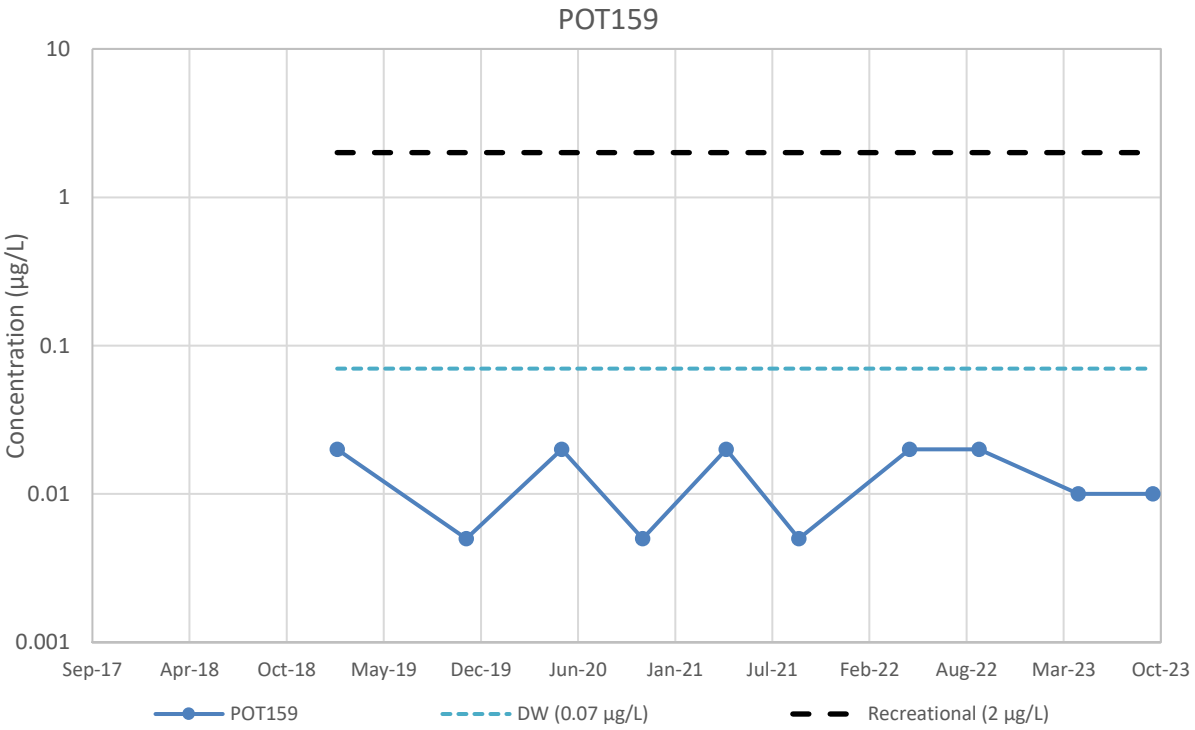
POT147 PFOS+PFHxS Concentration Trends



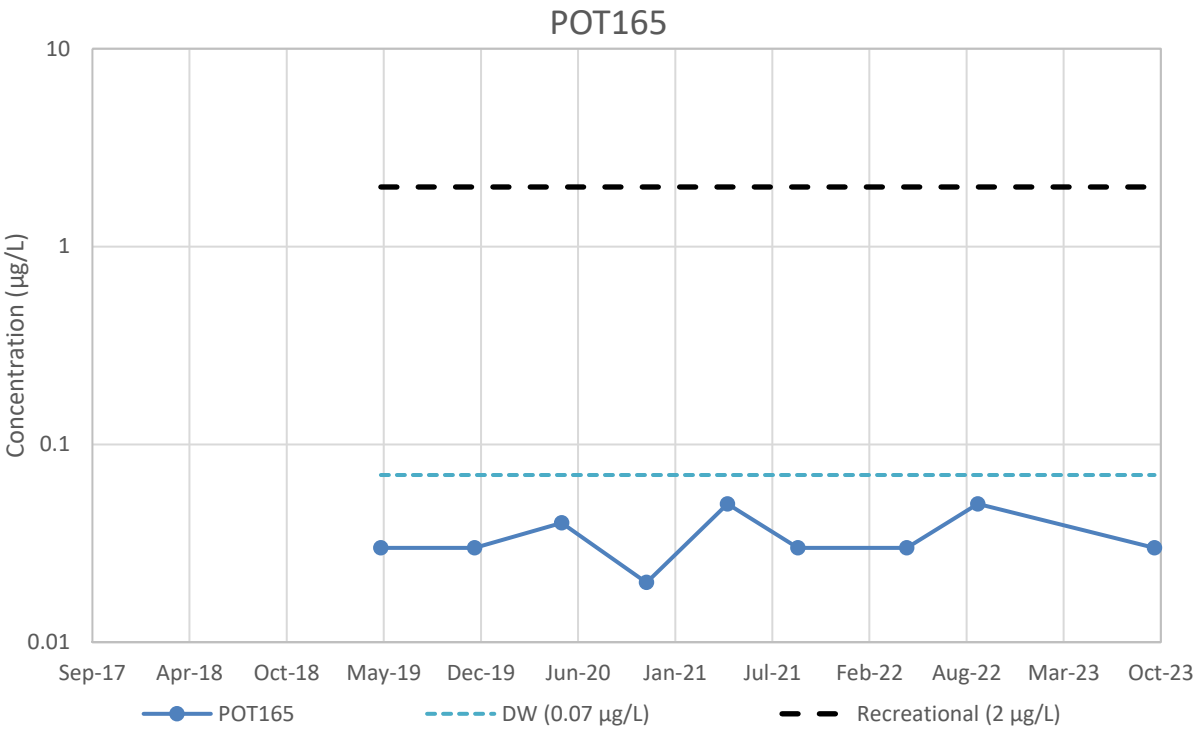
POT155 PFOS+PFHxS Concentration Trends



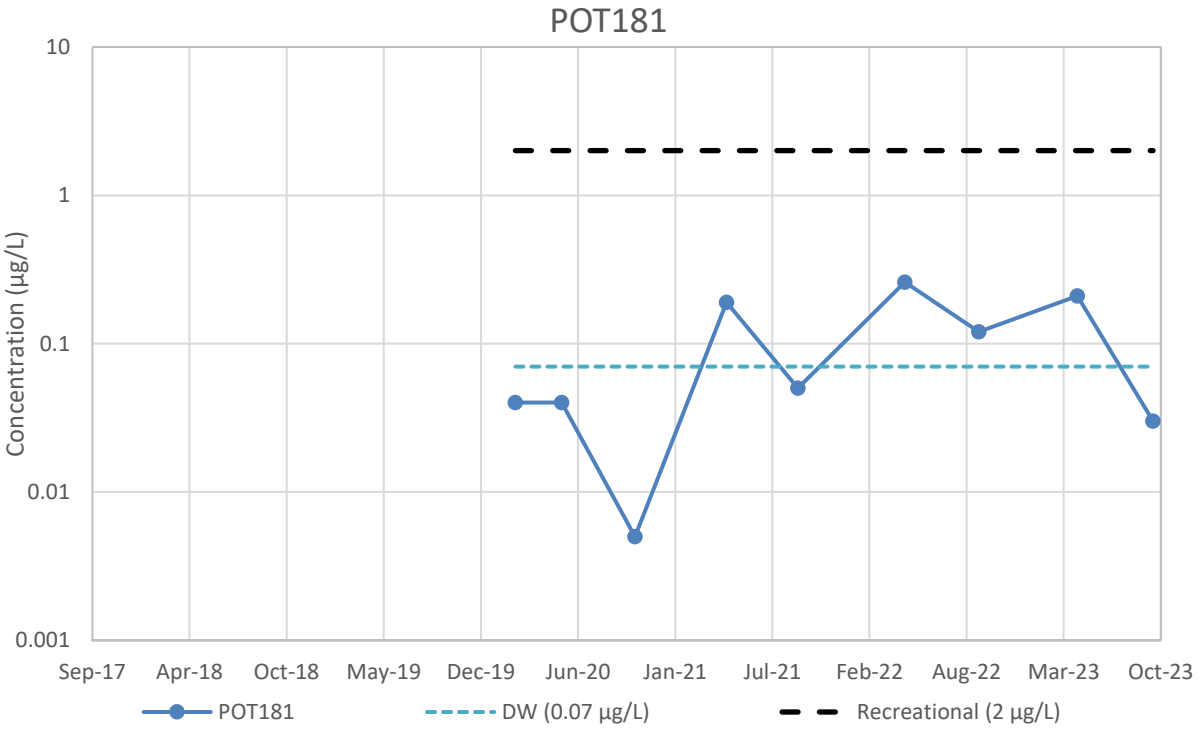
POT159 PFOS+PFHxS Concentration Trends



POT165 PFOS+PFHxS Concentration Trends



POT181 PFOS+PFHxS Concentration Trends



Trend Report

Report Date & Time: 2024-02-07 08:35:30

Data File Name: MW_inputPFOS.csv

Report Title: Groundwater Trend Data

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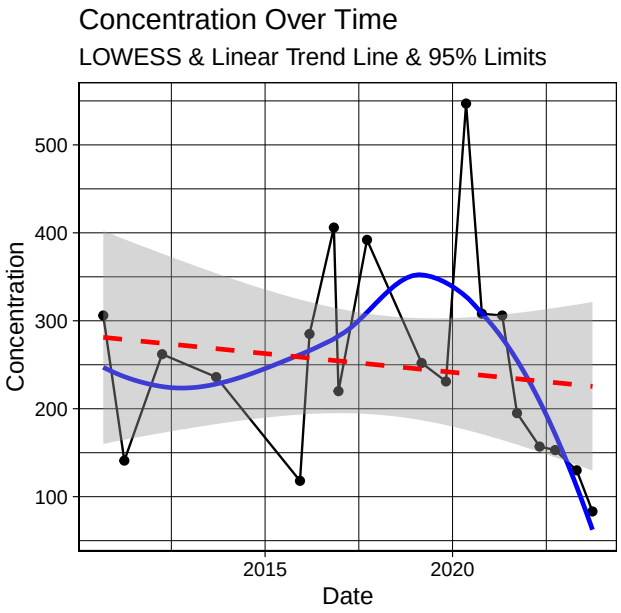
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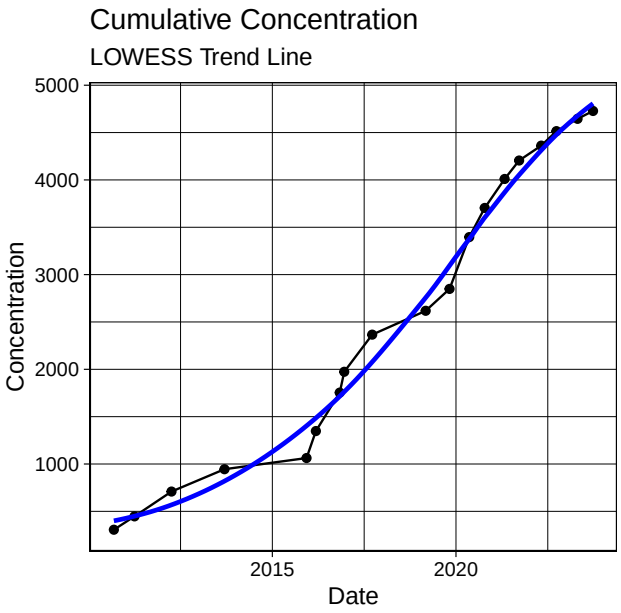
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Kendall Trend Test Results Continuous	
n	19
z	-1.51
p	0.13
S	-44
varS	816
tau	-0.26
mean	248.85
sd	114.93
cov	0.46
results	STABLE

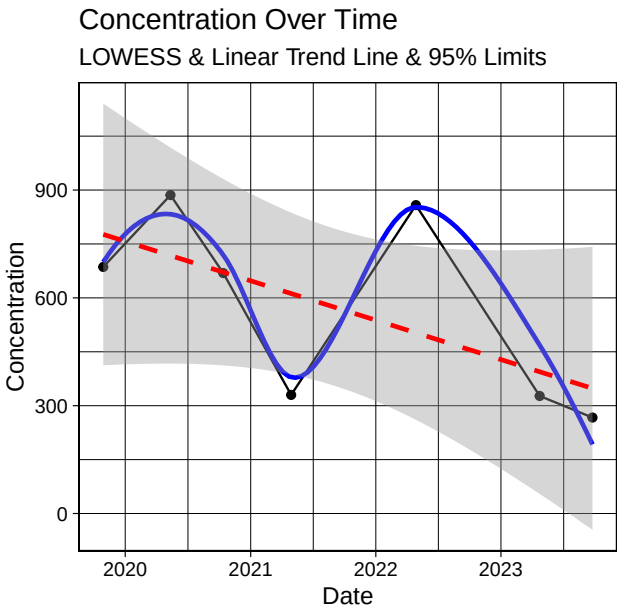
Report for ID : MW015 and Analyte : PFOS

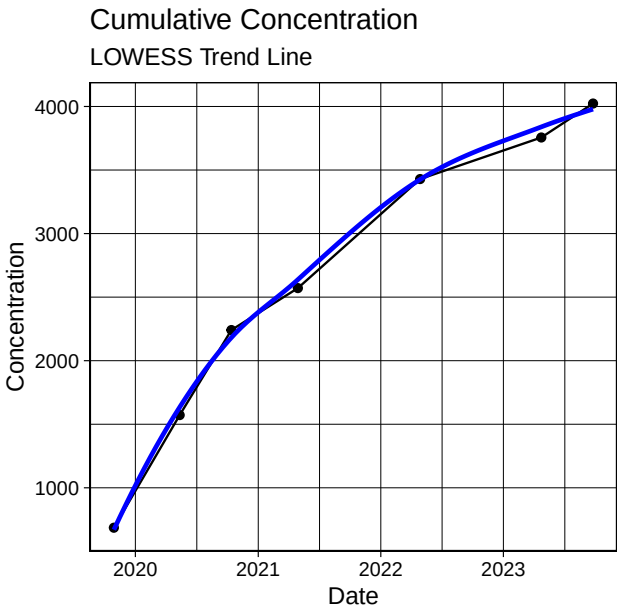




Kendall Trend Test Results Continuous	
n	7
z	-1.8
p	0.07
S	-13
varS	44.33
tau	-0.62
mean	574.71
sd	262.79
cov	0.46
results	POSSIBLY DECREASING

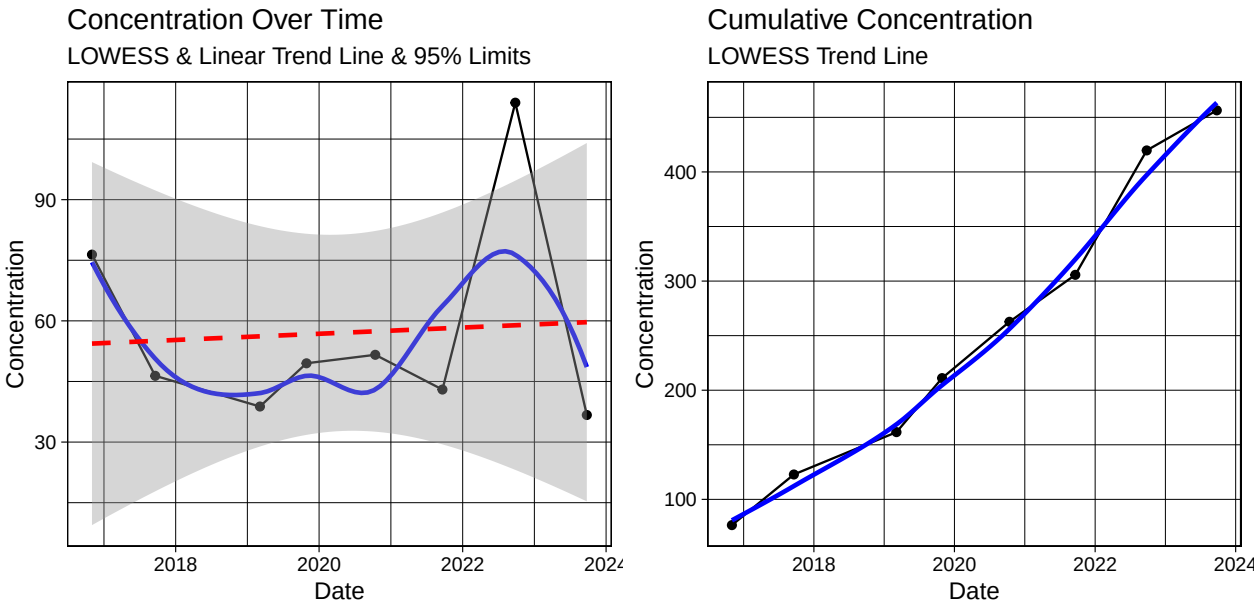
Report for ID : MW052 and Analyte : PFOS





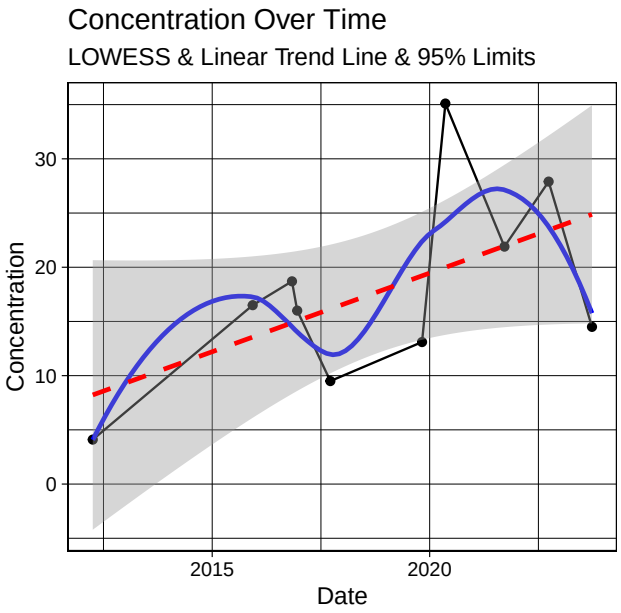
Kendall Trend Test Results Continuous	
n	8
z	-0.37
p	0.71
S	-4
varS	65.33
tau	-0.14
mean	57.05
sd	26.08
cov	0.46
results	STABLE

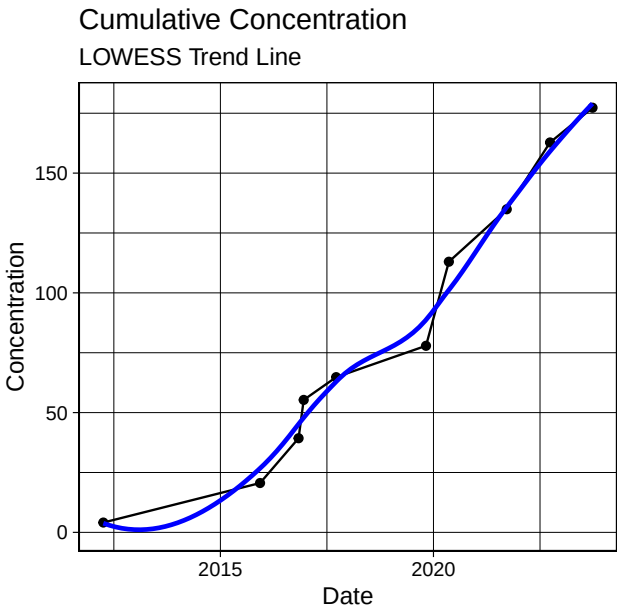
Report for ID : MW053 and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	10
z	1.07
p	0.28
S	13
varS	125
tau	0.29
mean	17.73
sd	8.9
cov	0.5
results	NO CLEAR TREND

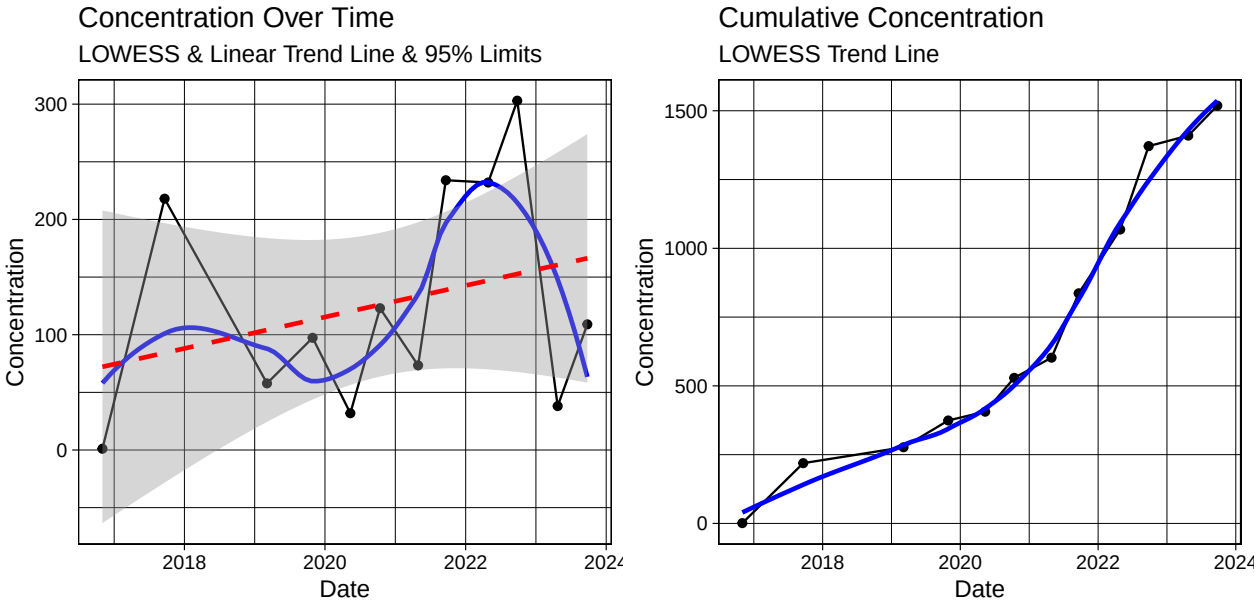
Report for ID : MW055 and Analyte : PFOS





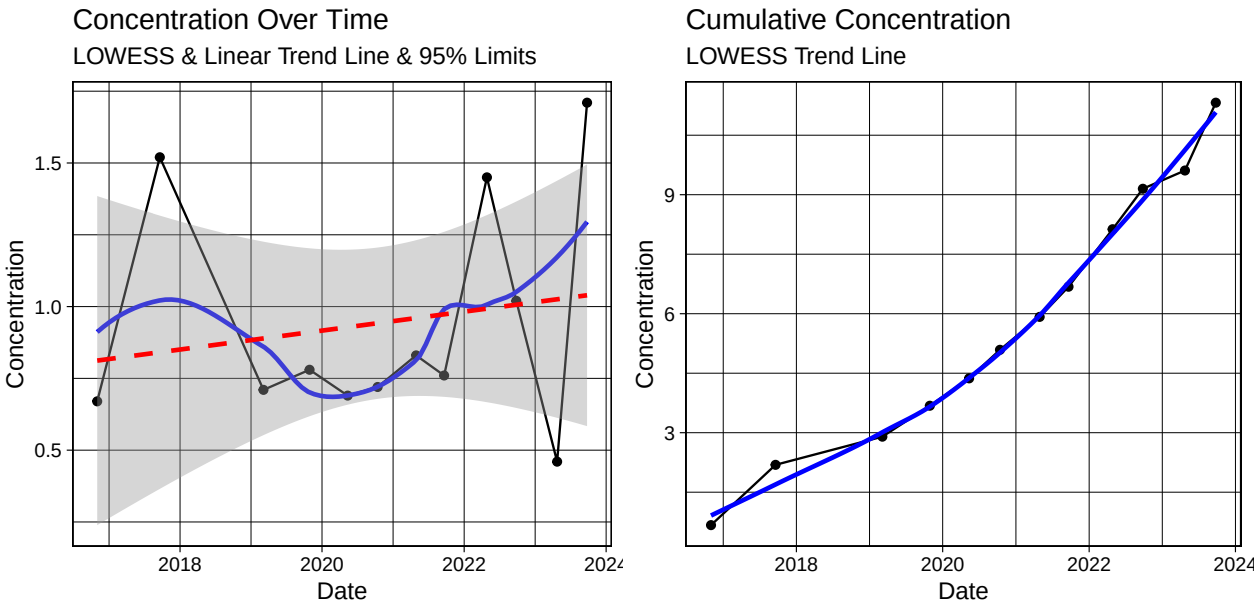
Kendall Trend Test Results Continuous	
n	12
z	1.3
p	0.19
S	20
varS	212.67
tau	0.3
mean	126.55
sd	96.96
cov	0.77
results	NO CLEAR TREND

Report for ID : MW101 and Analyte : PFOS



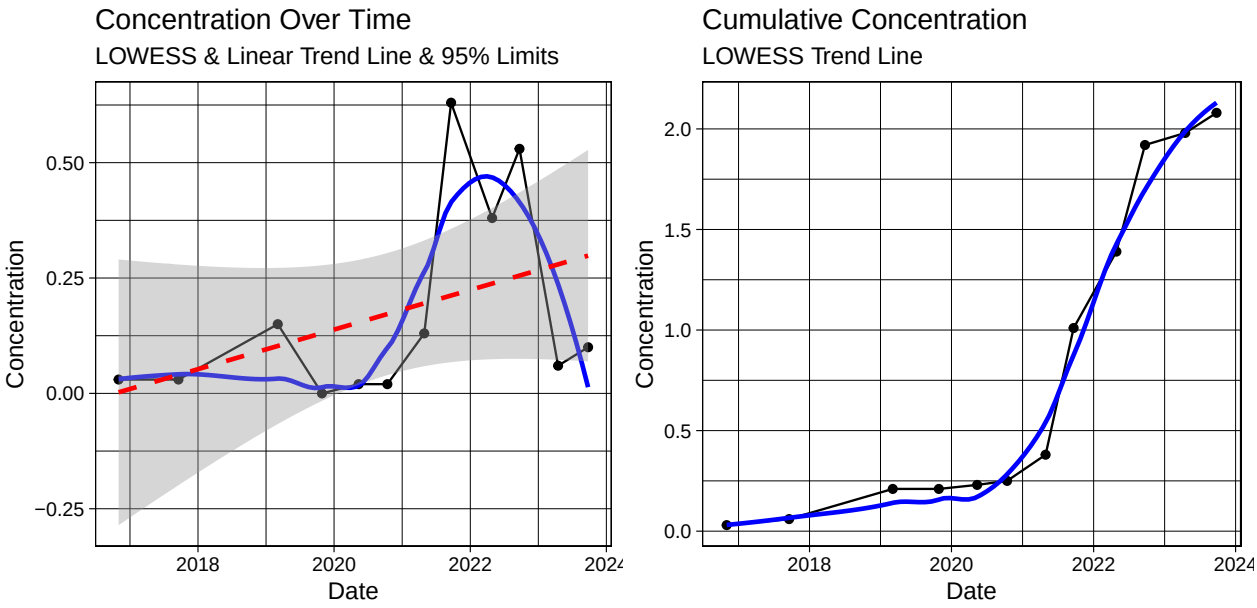
Kendall Trend Test Results Continuous	
n	12
z	1.17
p	0.24
S	18
varS	212.67
tau	0.27
mean	0.94
sd	0.4
cov	0.42
results	NO CLEAR TREND

Report for ID : MW102 and Analyte : PFOS



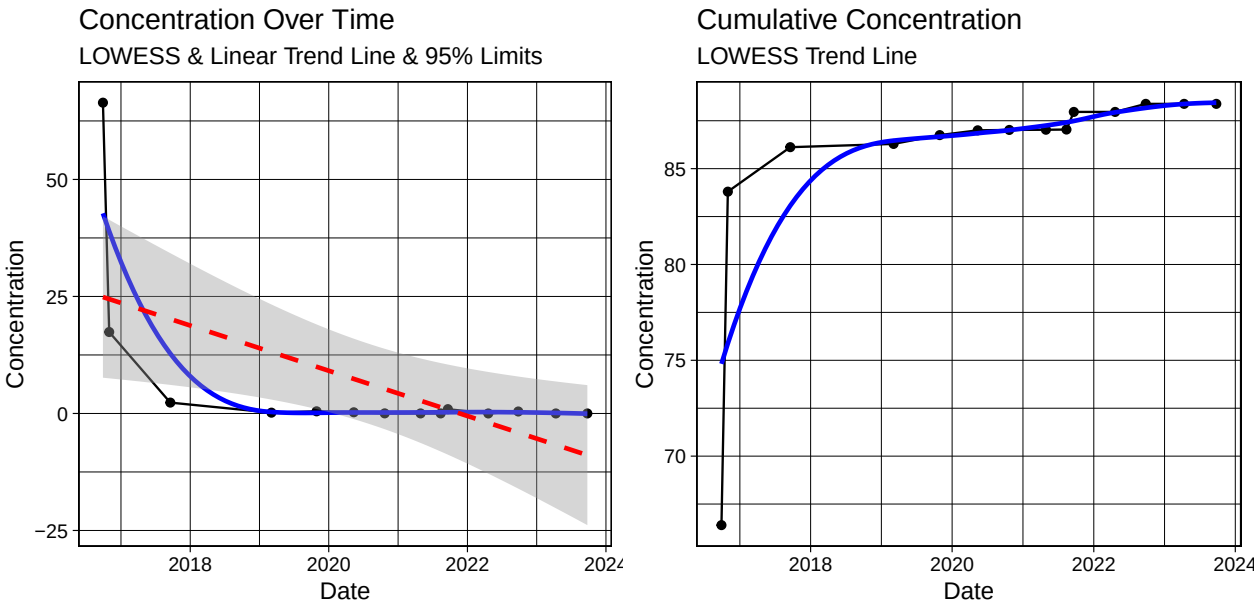
Kendall Trend Test Results Continuous	
n	12
z	1.31
p	0.19
S	20
varS	210.67
tau	0.31
mean	0.17
sd	0.22
cov	1.25
results	NO CLEAR TREND

Report for ID : MW103 and Analyte : PFOS



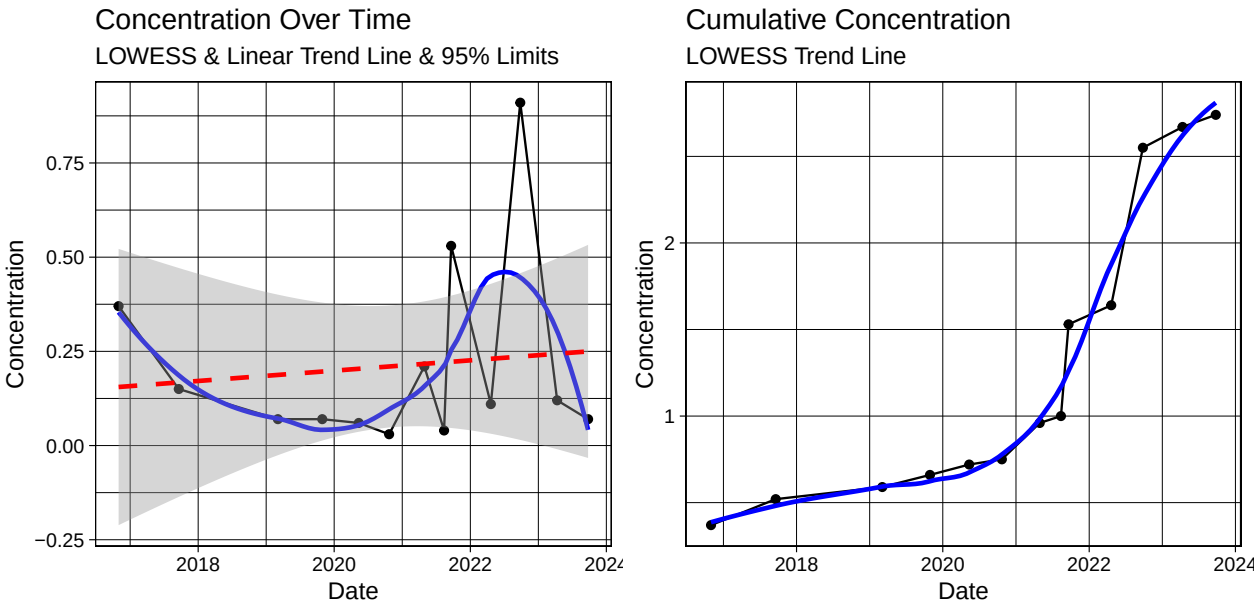
Kendall Trend Test Results Continuous	
n	14
z	-3.2
p	0
S	-59
varS	329
tau	-0.66
mean	6.31
sd	17.89
cov	2.83
results	DECREASING

Report for ID : MW104 and Analyte : PFOS



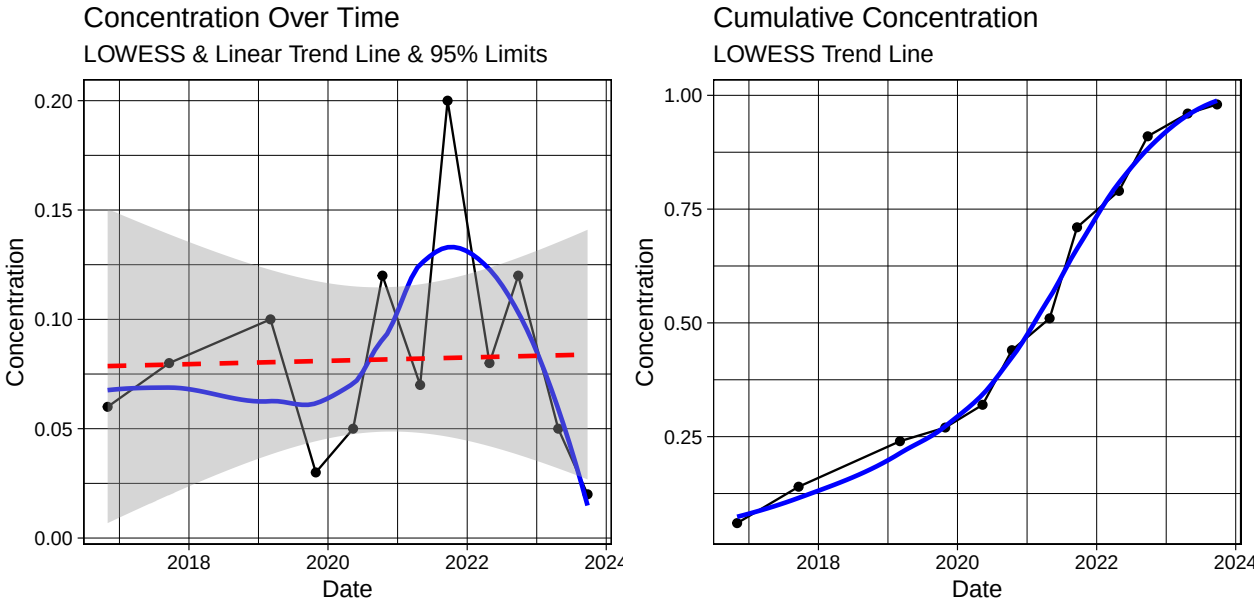
Kendall Trend Test Results Continuous	
n	13
z	0
p	1
S	1
varS	265
tau	0.01
mean	0.21
sd	0.26
cov	1.21
results	NO CLEAR TREND

Report for ID : MW105 and Analyte : PFOS



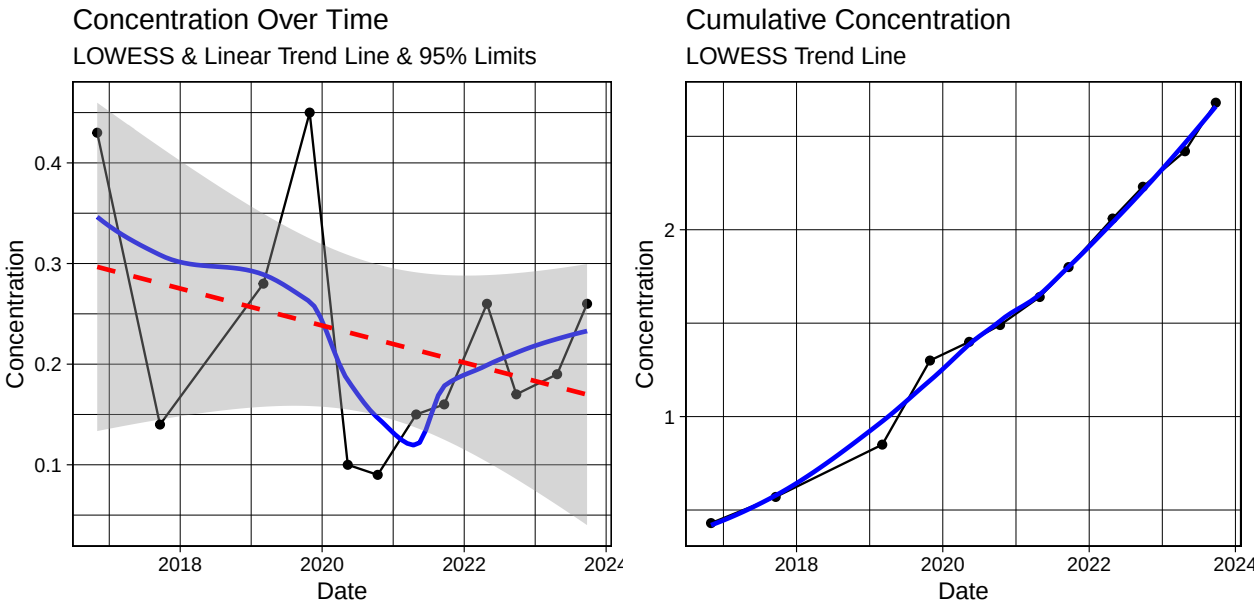
Kendall Trend Test Results Continuous	
n	12
z	0
p	1
S	-1
varS	209.67
tau	-0.02
mean	0.08
sd	0.05
cov	0.6
results	STABLE

Report for ID : MW107 and Analyte : PFOS



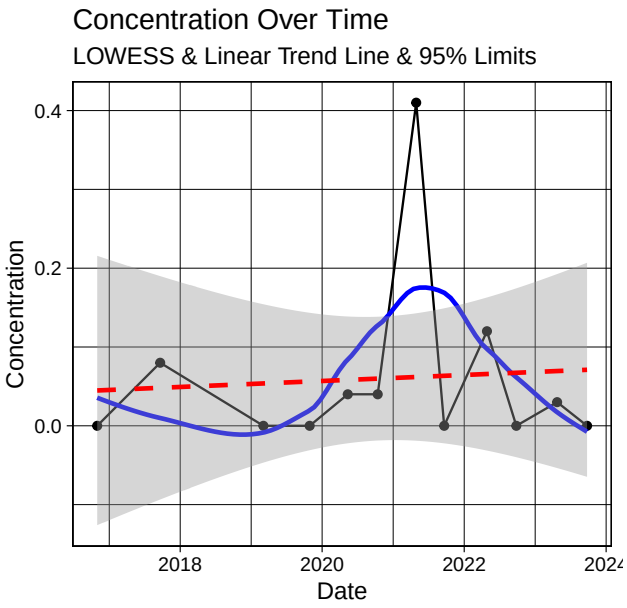
Kendall Trend Test Results Continuous	
n	12
z	0.14
p	0.89
S	3
varS	211.67
tau	0.05
mean	0.22
sd	0.12
cov	0.53
results	NO CLEAR TREND

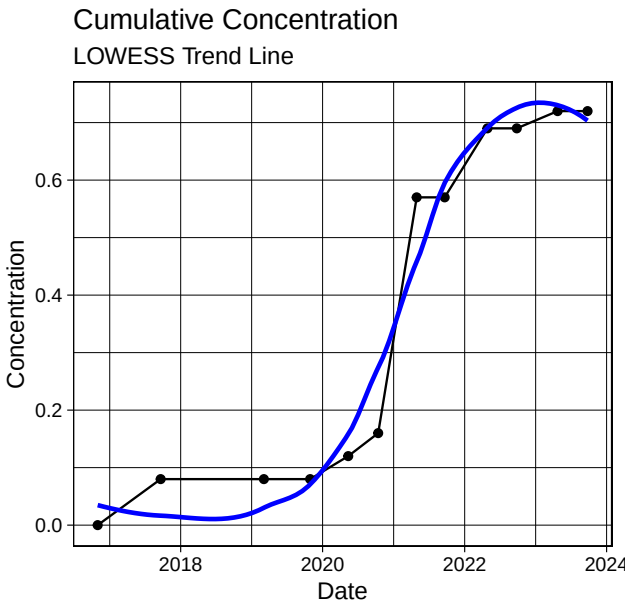
Report for ID : MW109 and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	12
z	0
p	1
S	0
varS	183.33
tau	0
mean	0.06
sd	0.12
cov	1.94
results	NO CLEAR TREND

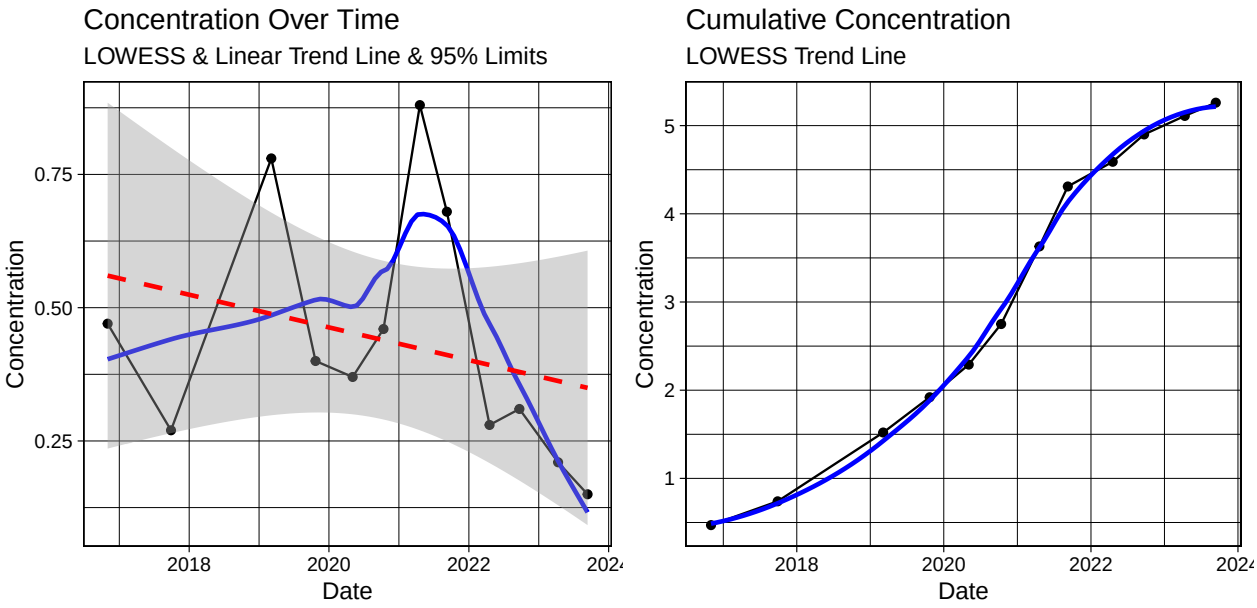
Report for ID : MW110 and Analyte : PFOS





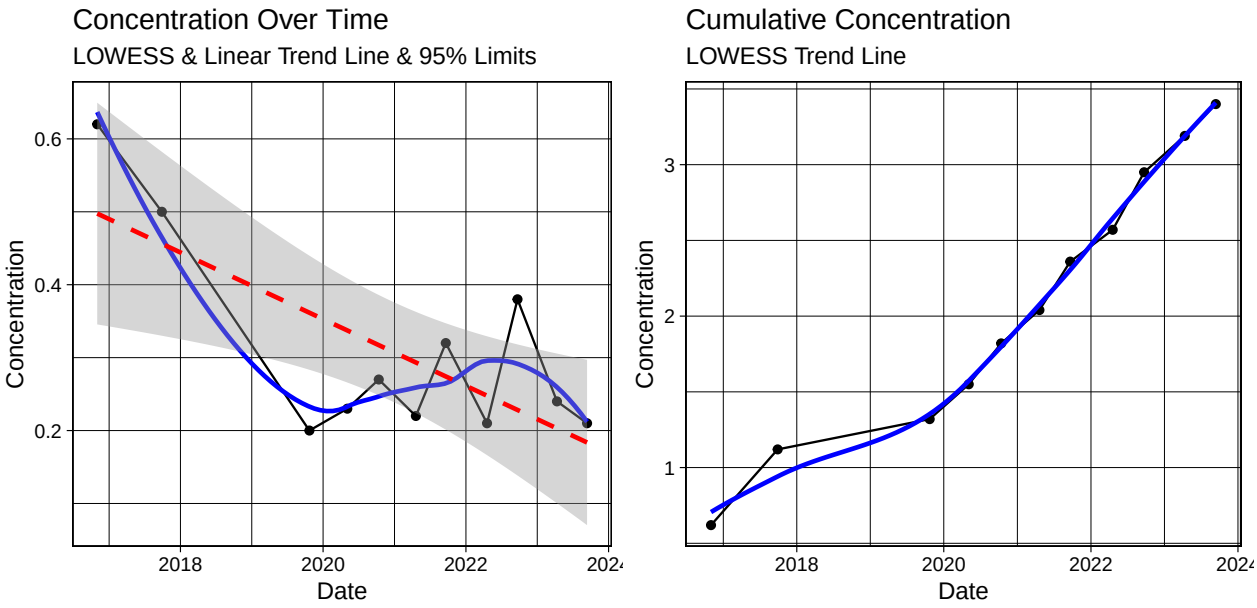
Kendall Trend Test Results Continuous	
n	12
z	-1.58
p	0.11
S	-24
varS	212.67
tau	-0.36
mean	0.44
sd	0.23
cov	0.53
results	STABLE

Report for ID : MW112 and Analyte : PFOS



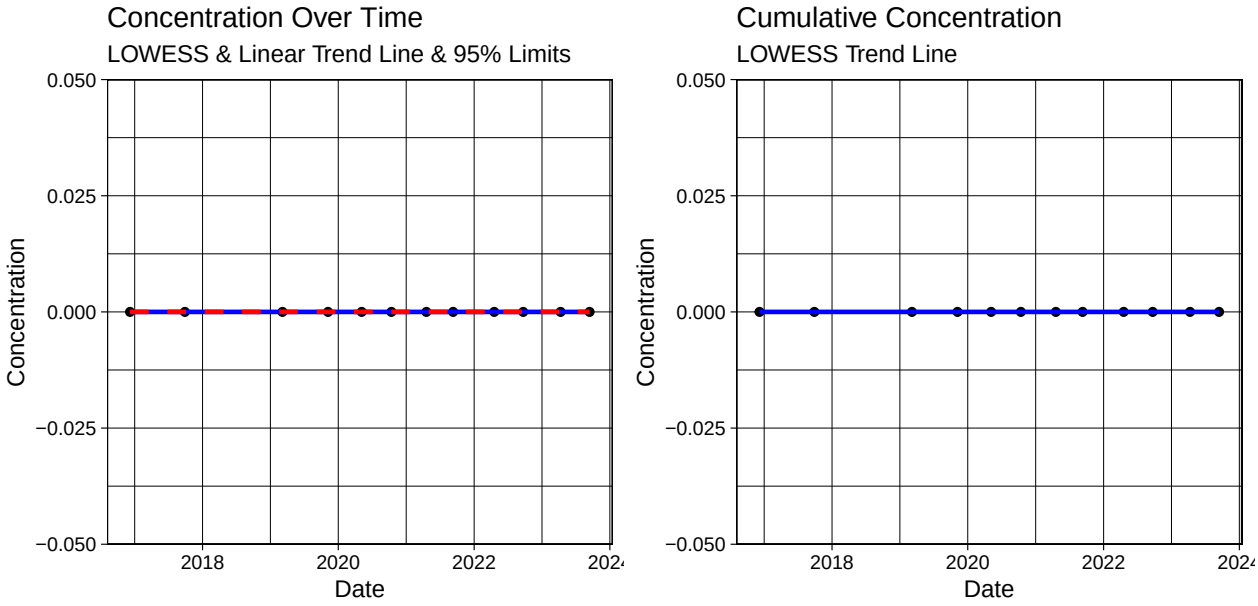
Kendall Trend Test Results Continuous	
n	11
z	-1.02
p	0.31
S	-14
varS	164
tau	-0.26
mean	0.31
sd	0.14
cov	0.45
results	STABLE

Report for ID : MW113 and Analyte : PFOS



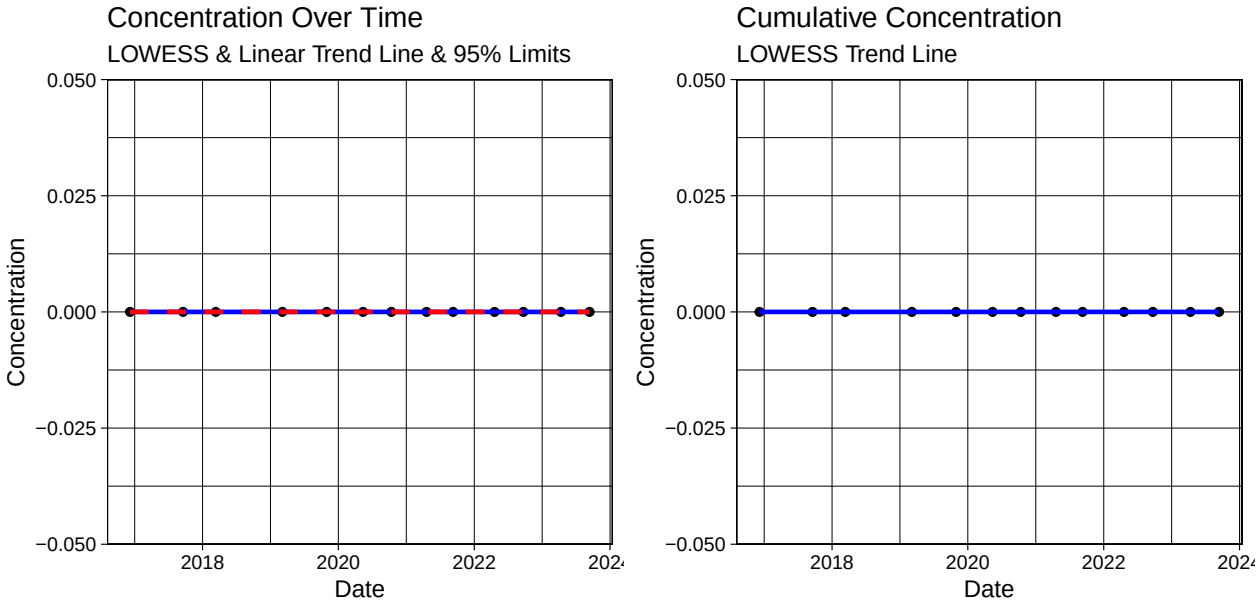
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW114 and Analyte : PFOS



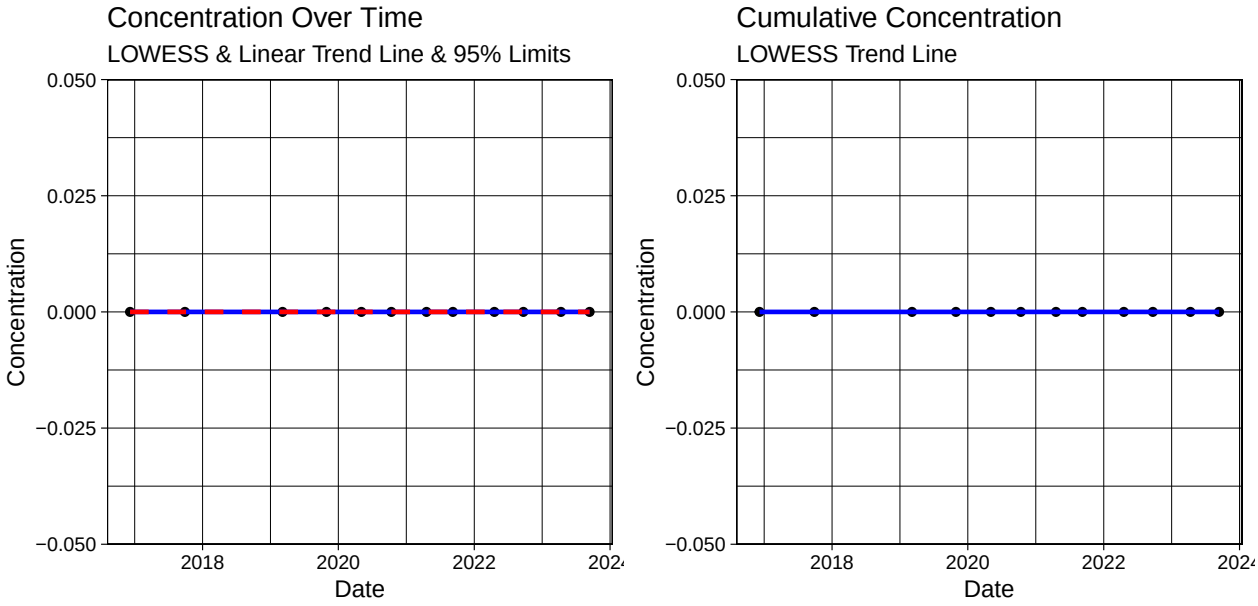
Kendall Trend Test Results Continuous	
n	13
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW115 and Analyte : PFOS



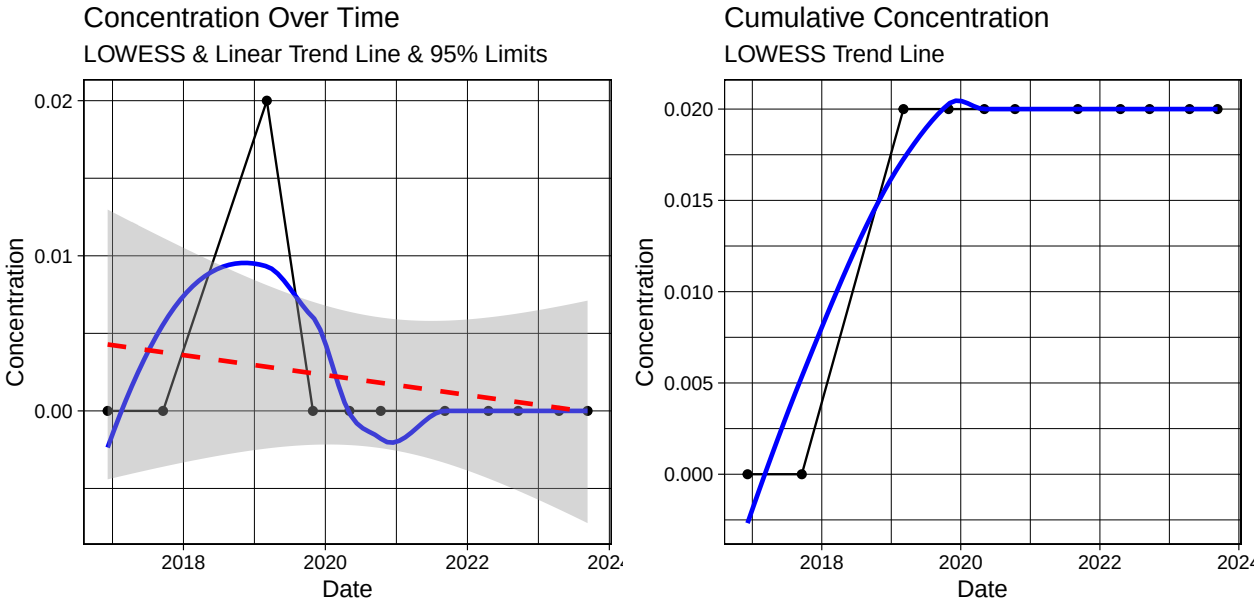
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW116 and Analyte : PFOS



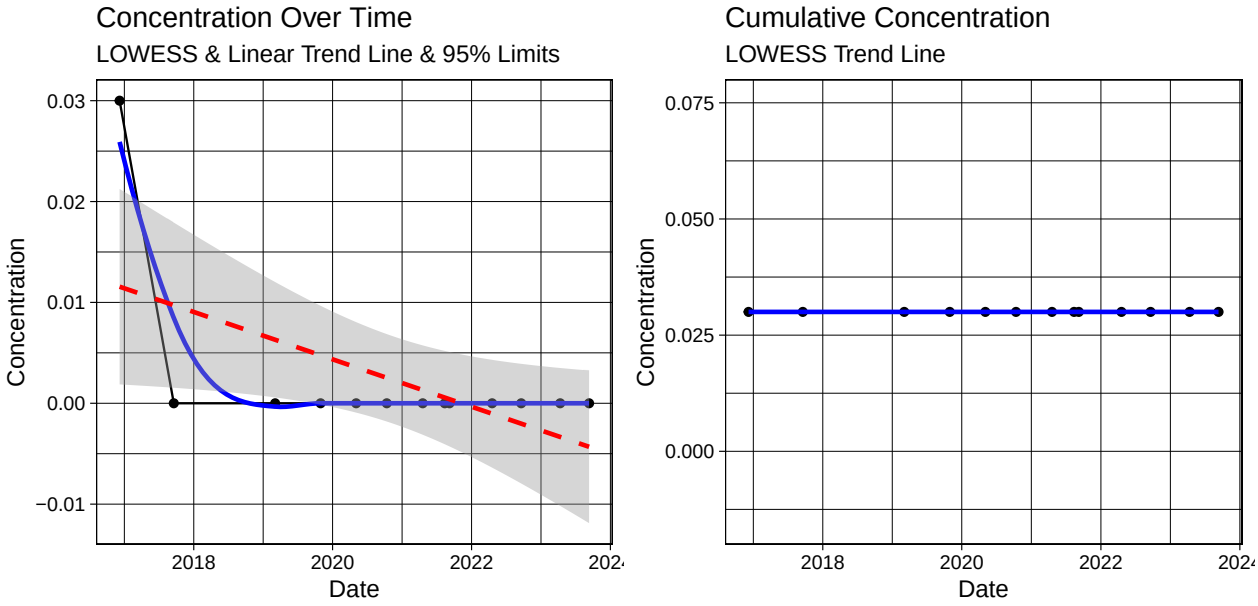
Kendall Trend Test Results Continuous	
n	11
z	-0.79
p	0.43
S	-6
varS	40
tau	-0.26
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

Report for ID : MW117 and Analyte : PFOS



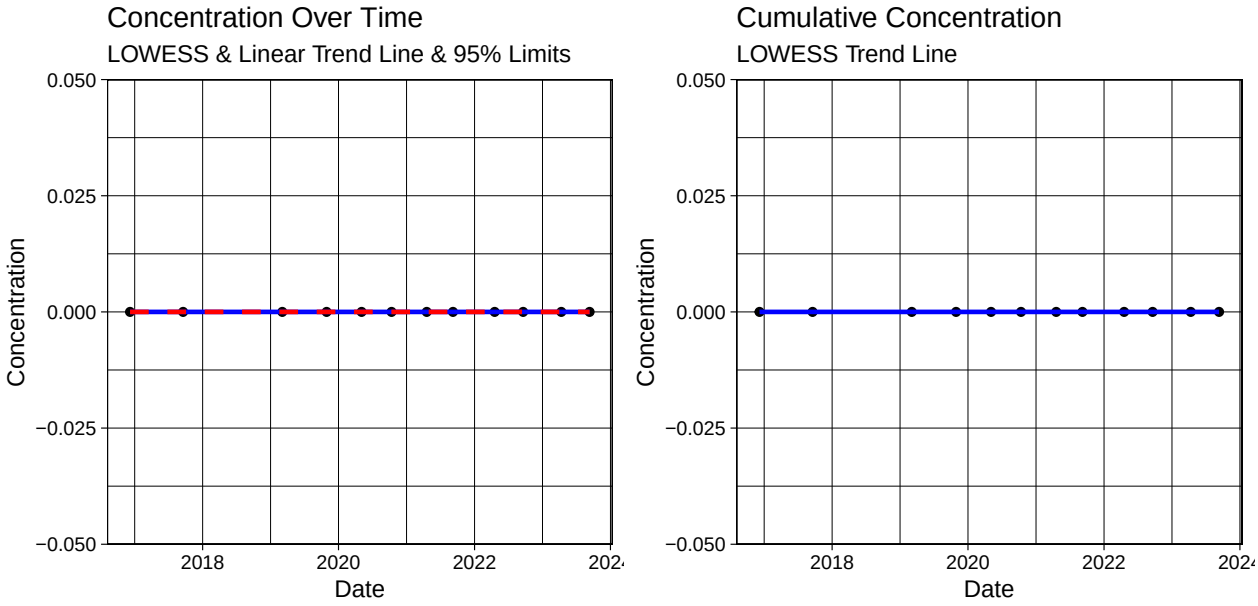
Kendall Trend Test Results Continuous	
n	13
z	-1.47
p	0.14
S	-12
varS	56
tau	-0.39
mean	0
sd	0.01
cov	3.61
results	NO CLEAR TREND

Report for ID : MW118 and Analyte : PFOS



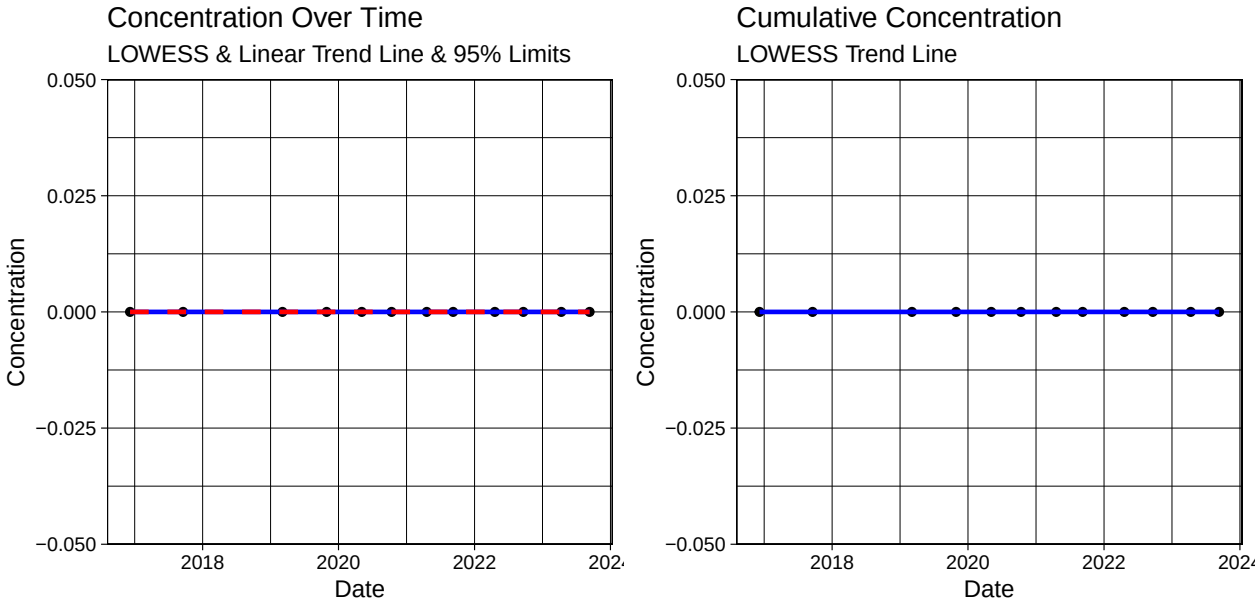
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW119 and Analyte : PFOS



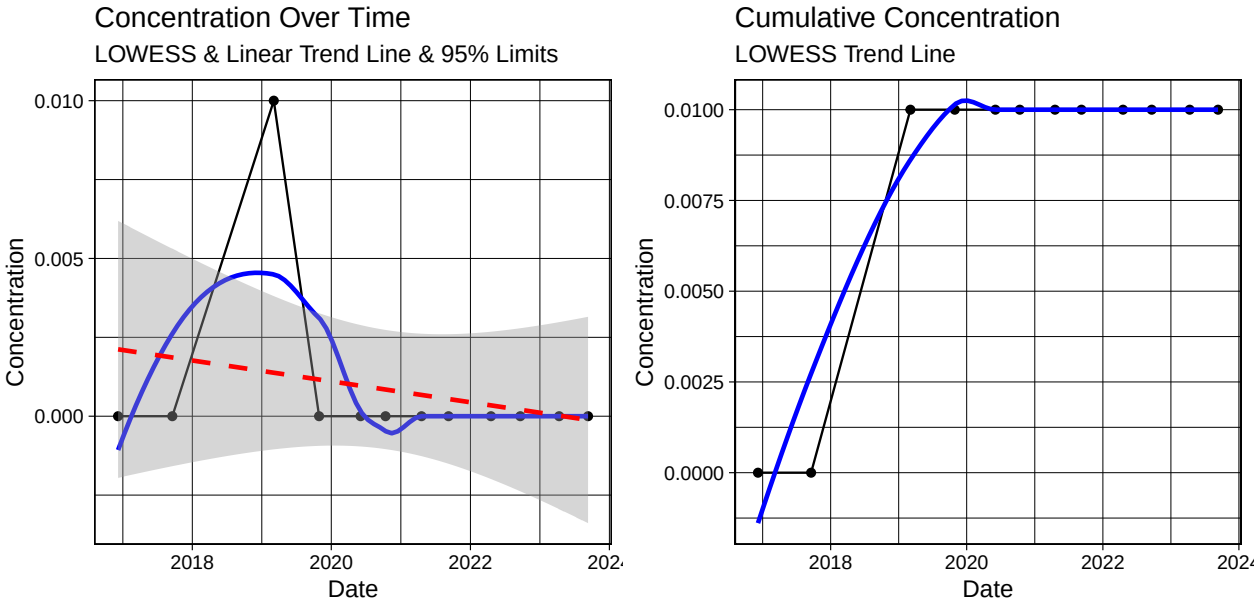
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW120 and Analyte : PFOS



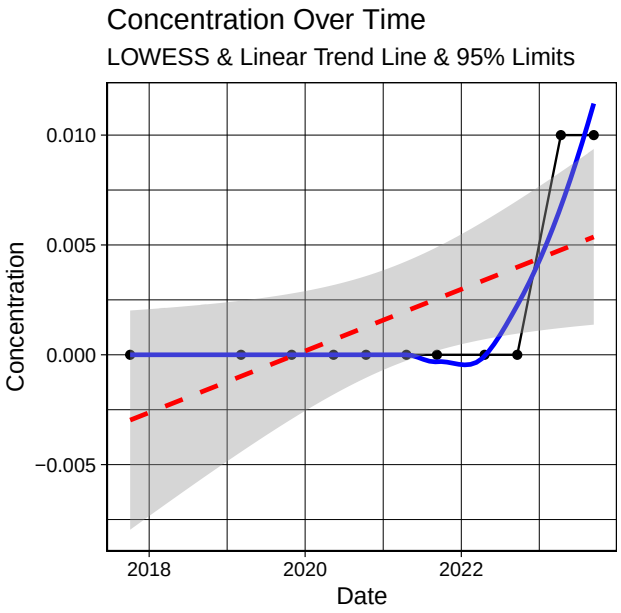
Kendall Trend Test Results Continuous	
n	12
z	-0.87
p	0.38
S	-7
varS	47.67
tau	-0.26
mean	0
sd	0
cov	3.46
results	NO CLEAR TREND

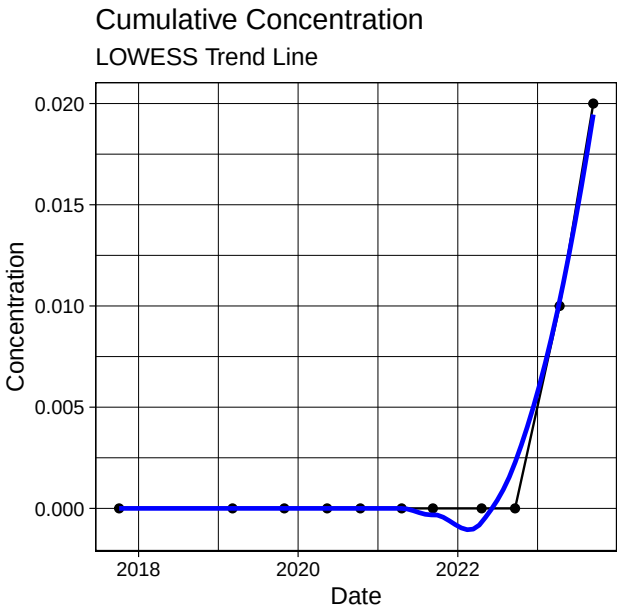
Report for ID : MW121 and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	11
z	2
p	0.05
S	18
varS	72
tau	0.57
mean	0
sd	0
cov	2.22
results	INCREASING

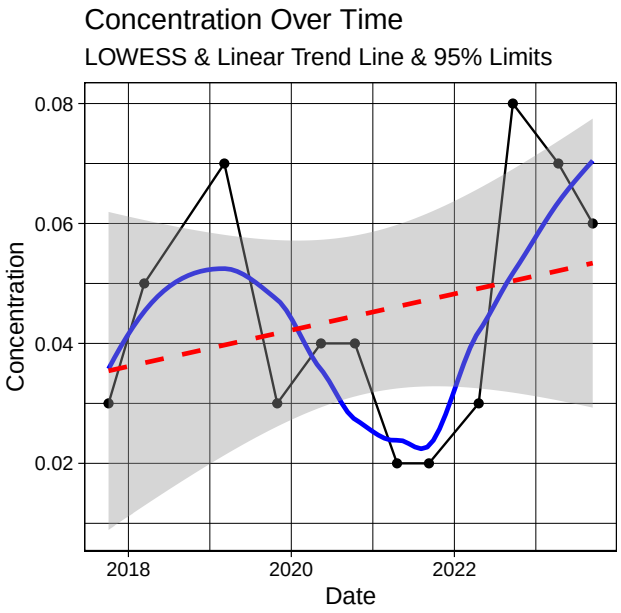
Report for ID : MW122D and Analyte : PFOS

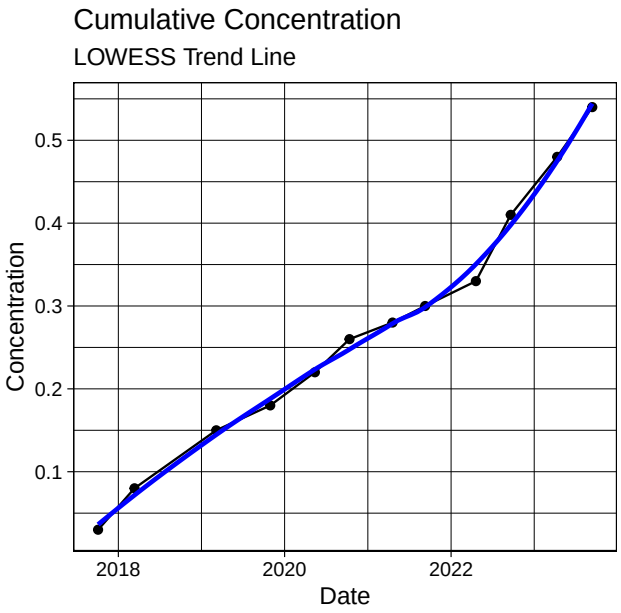




Kendall Trend Test Results Continuous	
n	12
z	0.49
p	0.63
S	8
varS	206
tau	0.13
mean	0.04
sd	0.02
cov	0.46
results	NO CLEAR TREND

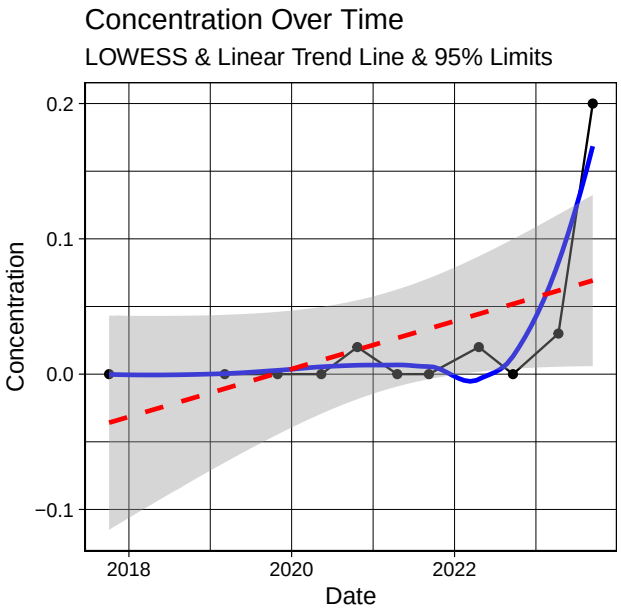
Report for ID : MW122S and Analyte : PFOS

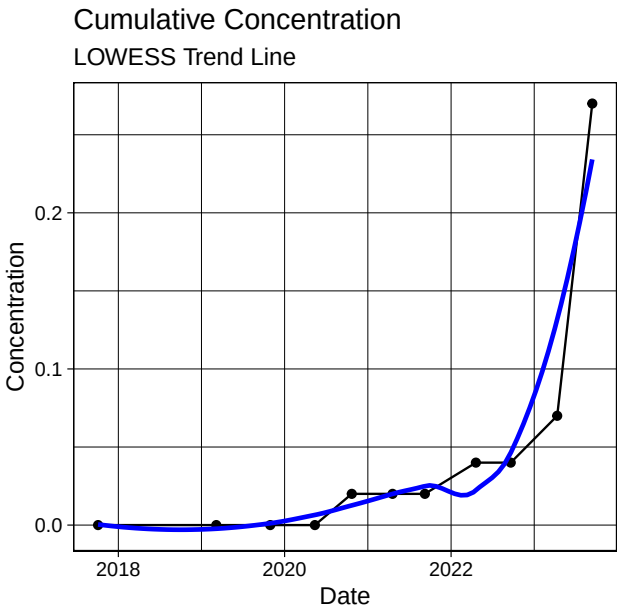




Kendall Trend Test Results Continuous	
n	11
z	2.19
p	0.03
S	25
varS	119.67
tau	0.59
mean	0.02
sd	0.06
cov	2.41
results	INCREASING

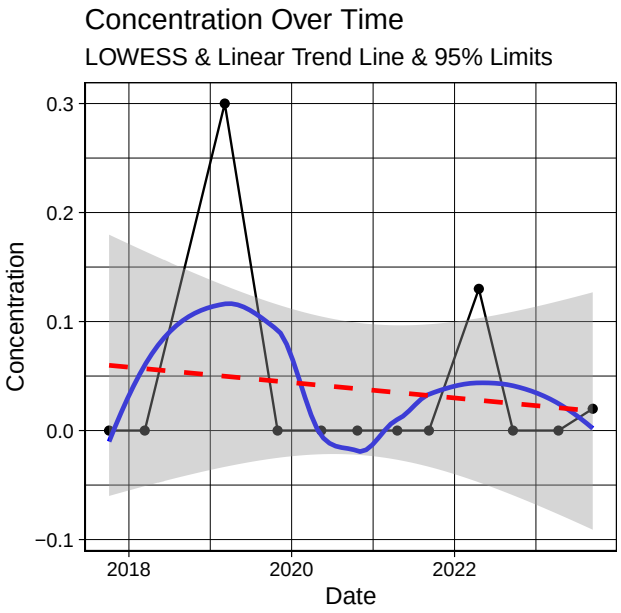
Report for ID : MW123D and Analyte : PFOS

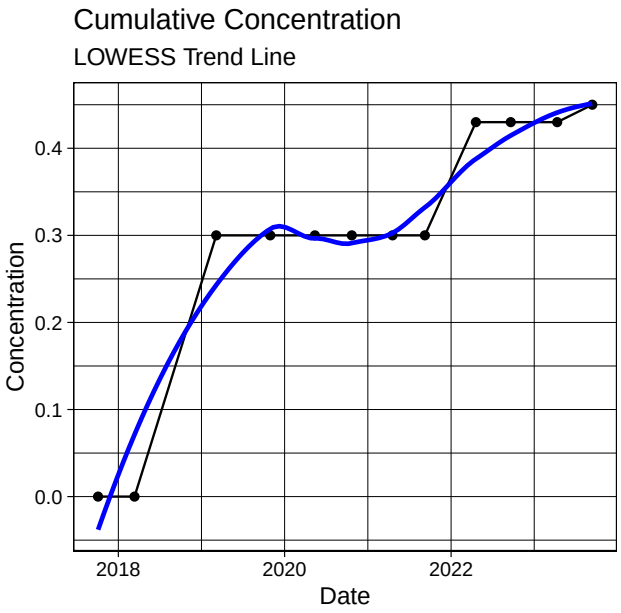




Kendall Trend Test Results Continuous	
n	12
z	0.46
p	0.65
S	6
varS	120.67
tau	0.13
mean	0.04
sd	0.09
cov	2.42
results	NO CLEAR TREND

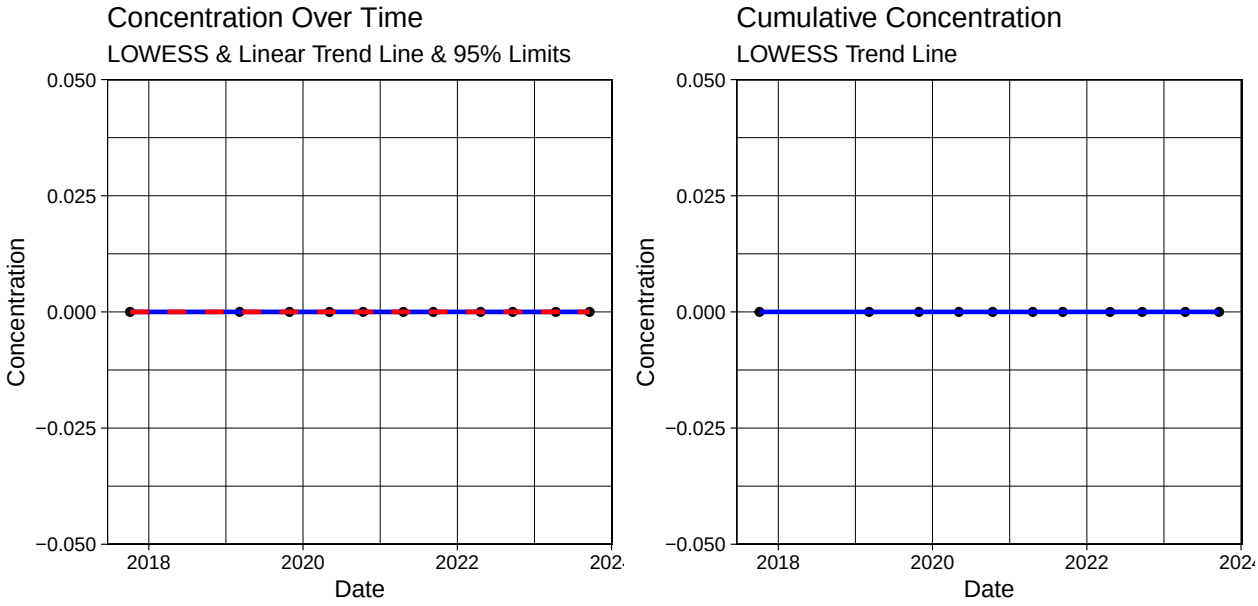
Report for ID : MW123S and Analyte : PFOS





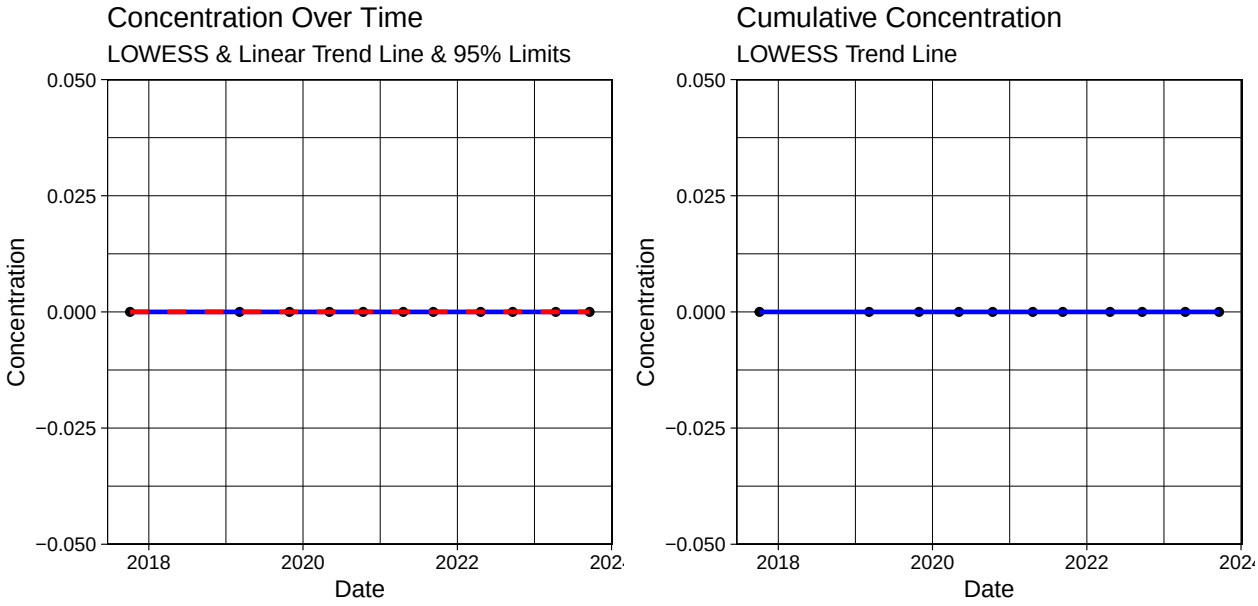
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW124D and Analyte : PFOS



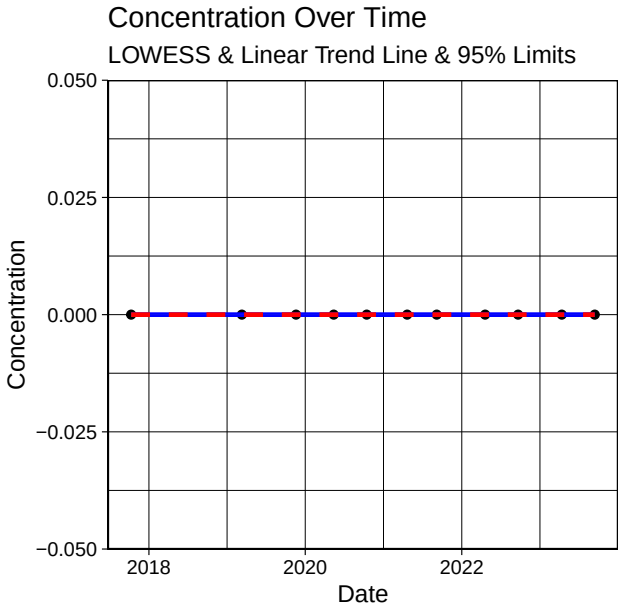
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

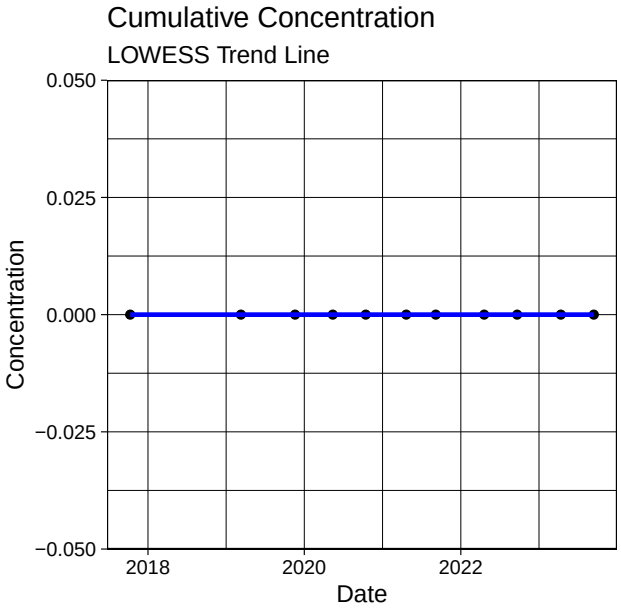
Report for ID : MW124S and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

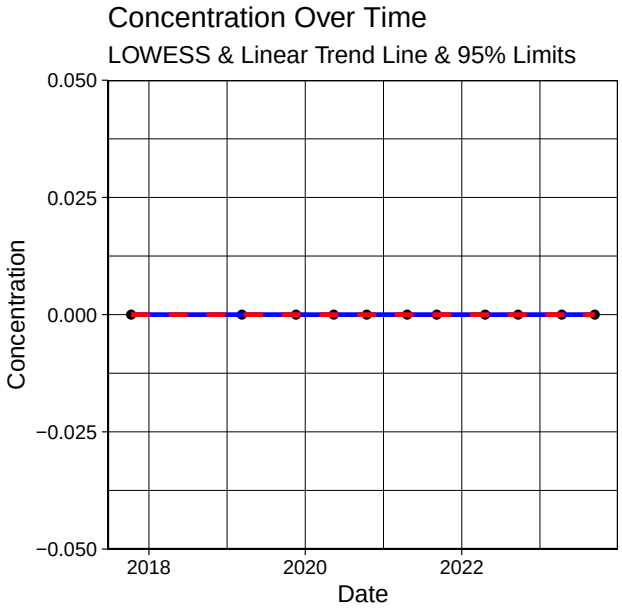
Report for ID : MW125D and Analyte : PFOS

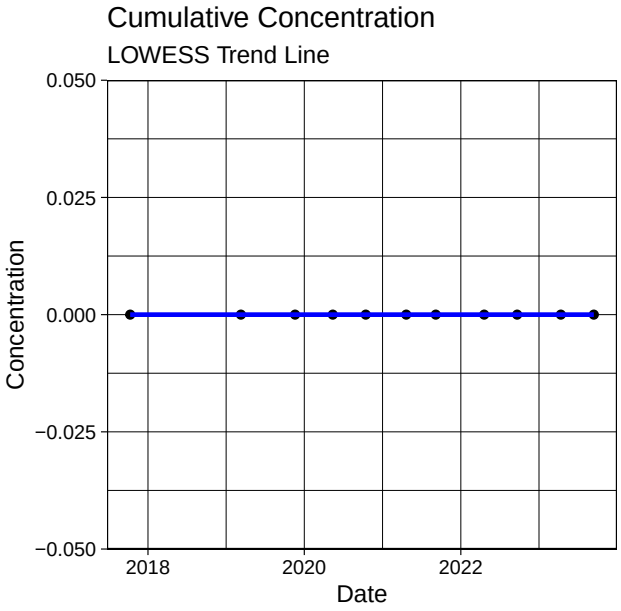




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

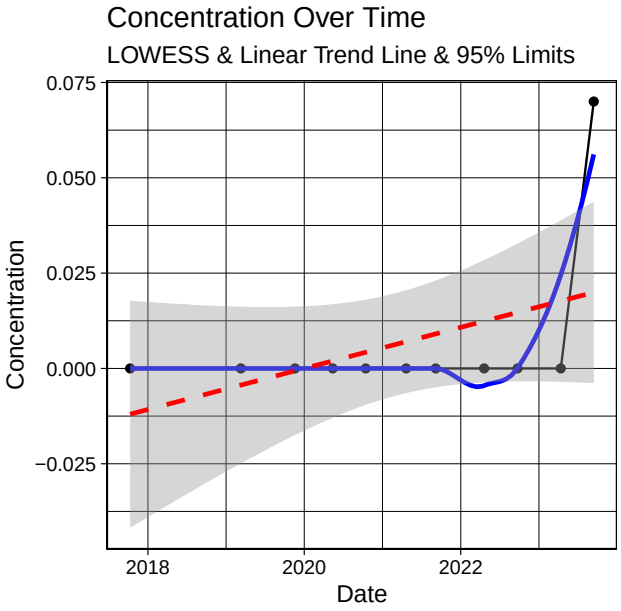
Report for ID : MW125S and Analyte : PFOS

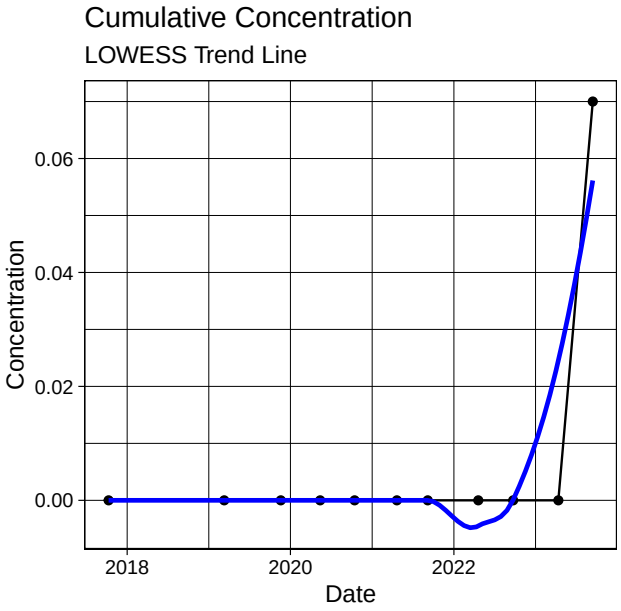




Kendall Trend Test Results Continuous	
n	11
z	1.42
p	0.15
S	10
varS	40
tau	0.43
mean	0.01
sd	0.02
cov	3.32
results	NO CLEAR TREND

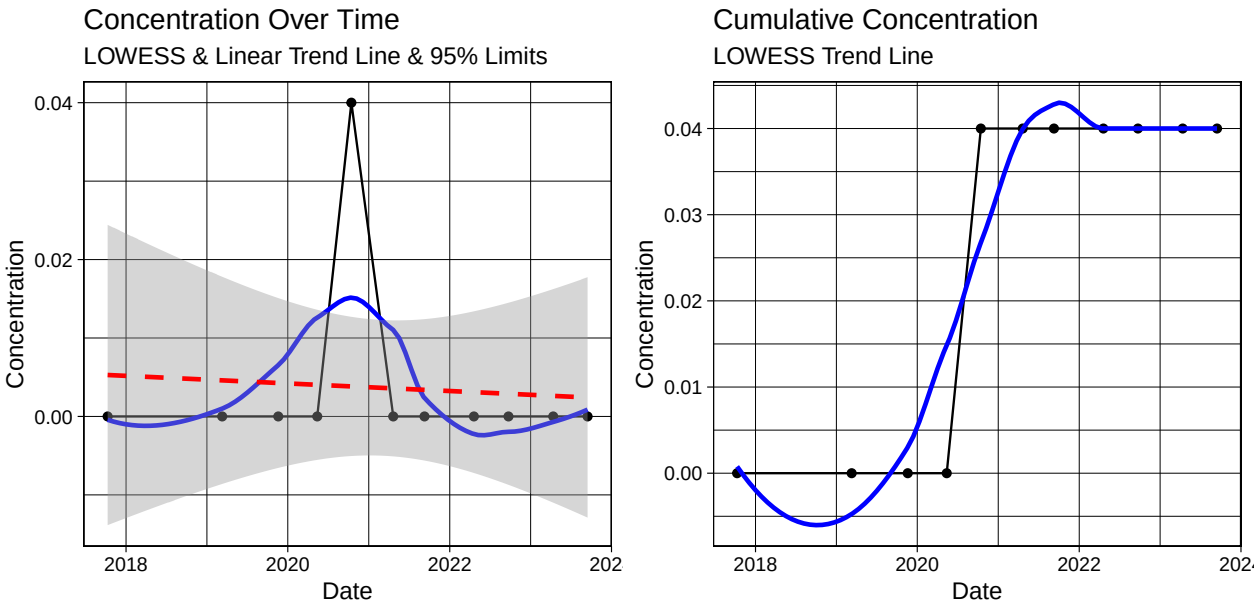
Report for ID : MW126 and Analyte : PFOS





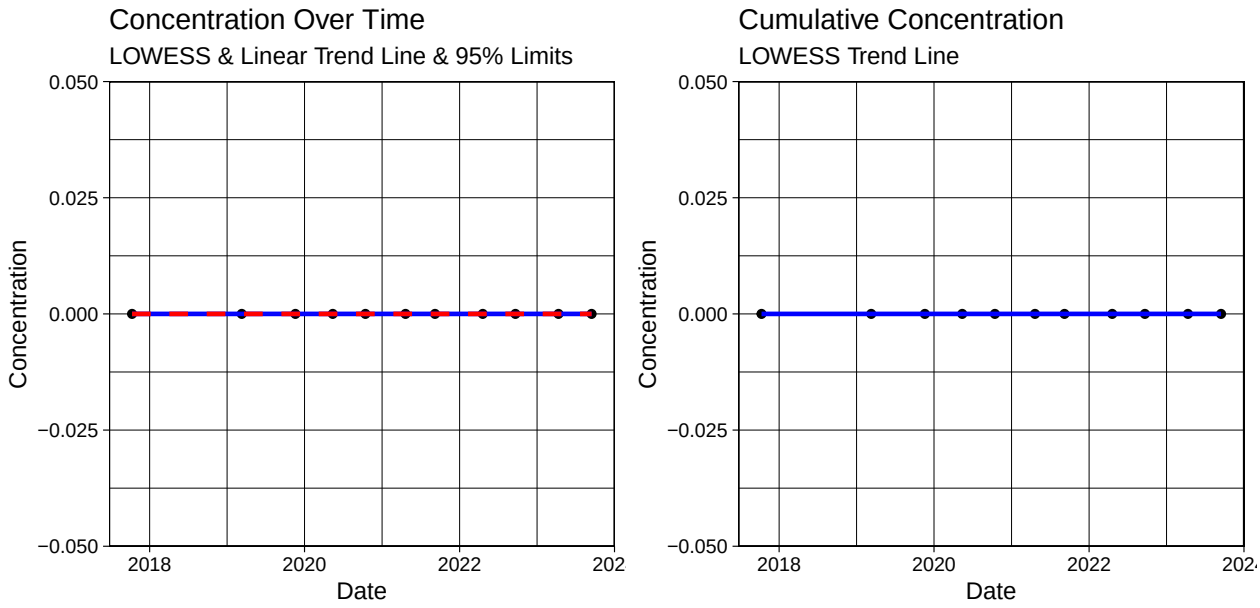
Kendall Trend Test Results Continuous	
n	11
z	-0.16
p	0.87
S	-2
varS	40
tau	-0.09
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

Report for ID : MW127 and Analyte : PFOS



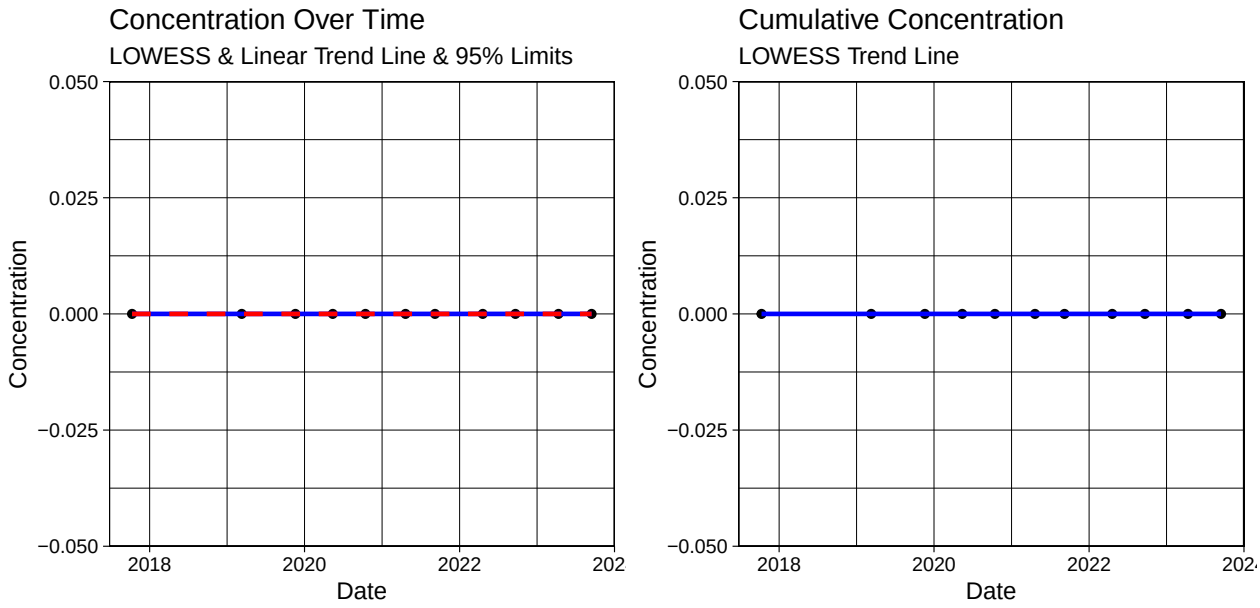
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128D and Analyte : PFOS



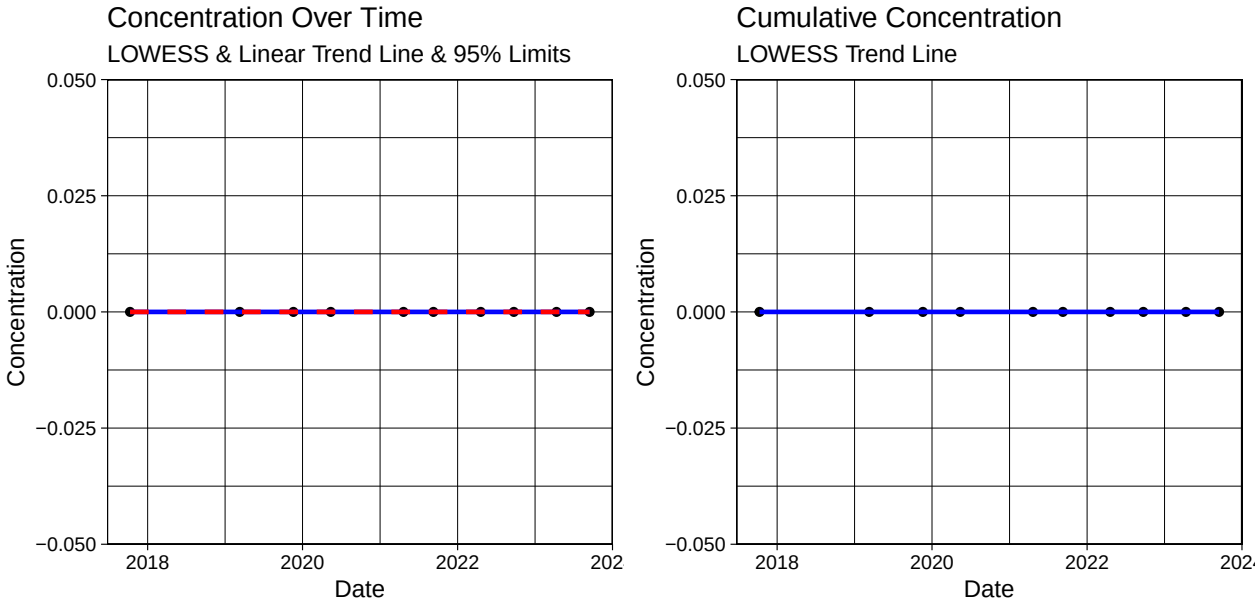
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128S and Analyte : PFOS



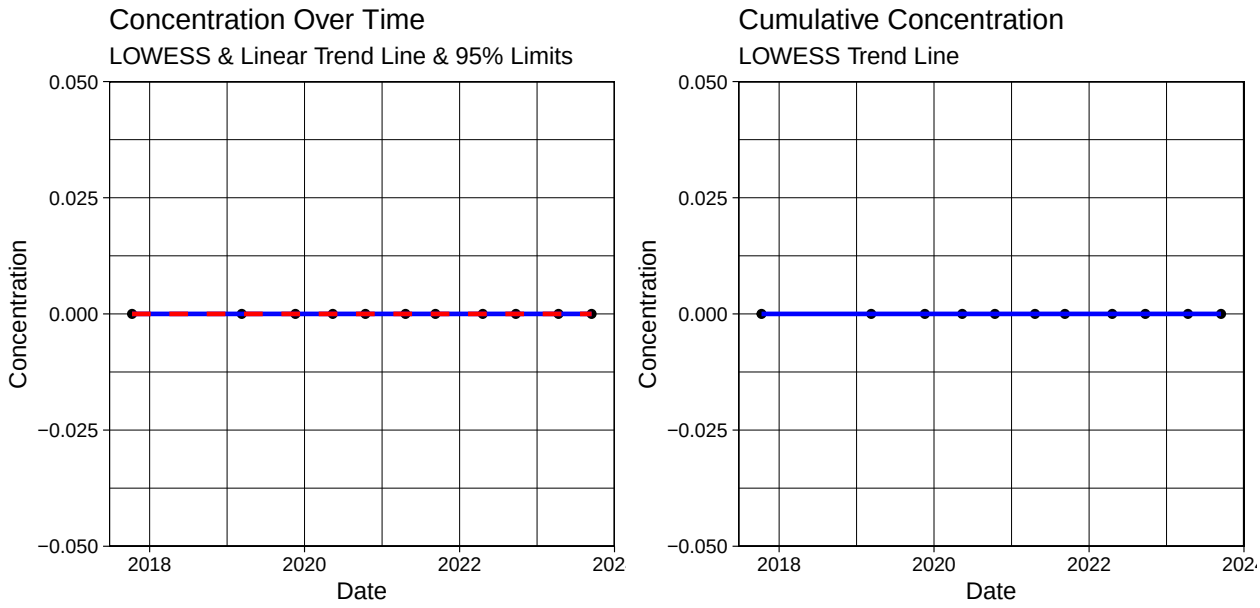
Kendall Trend Test Results Continuous	
n	10
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129D and Analyte : PFOS



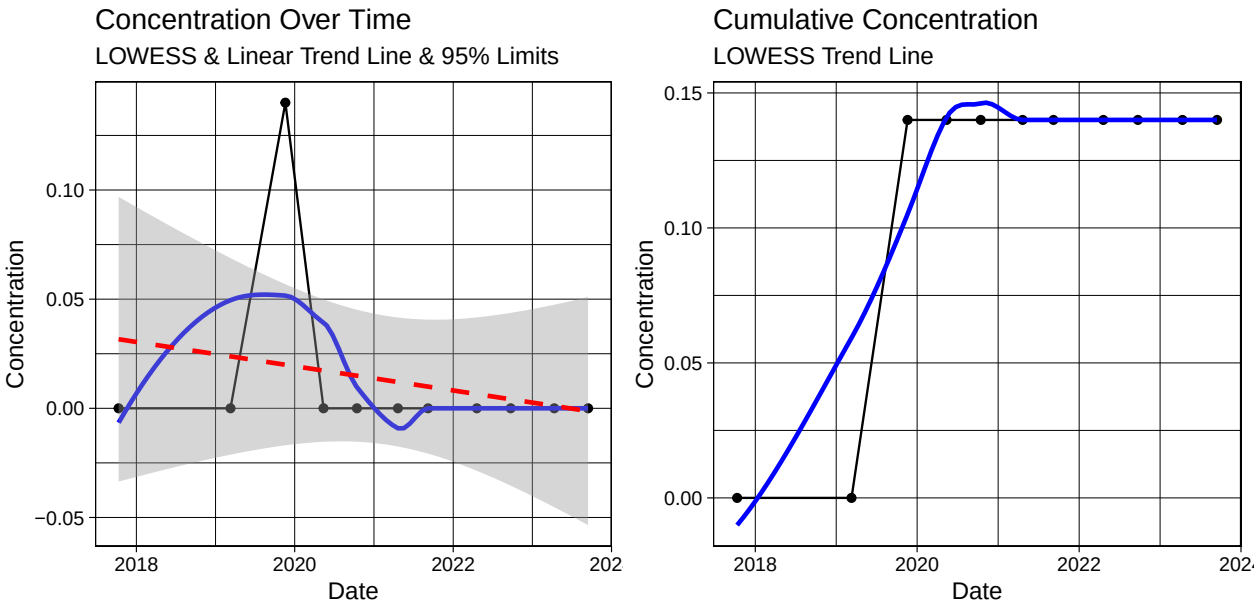
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129S and Analyte : PFOS



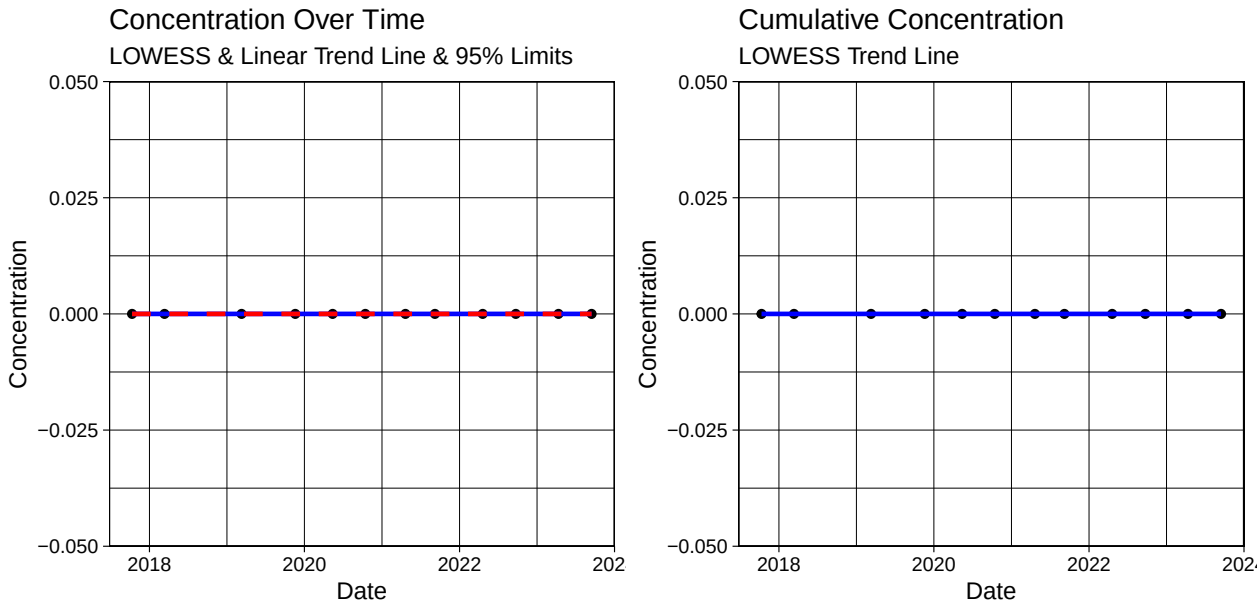
Kendall Trend Test Results Continuous	
n	11
z	-0.79
p	0.43
S	-6
varS	40
tau	-0.26
mean	0.01
sd	0.04
cov	3.32
results	NO CLEAR TREND

Report for ID : MW130D and Analyte : PFOS



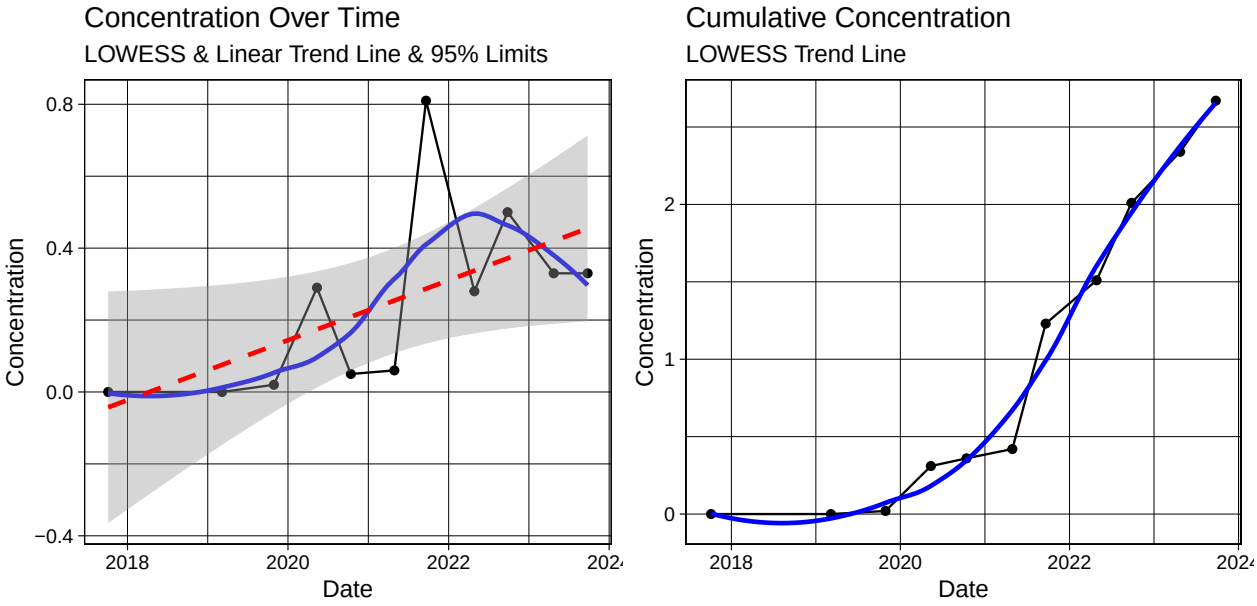
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW130S and Analyte : PFOS



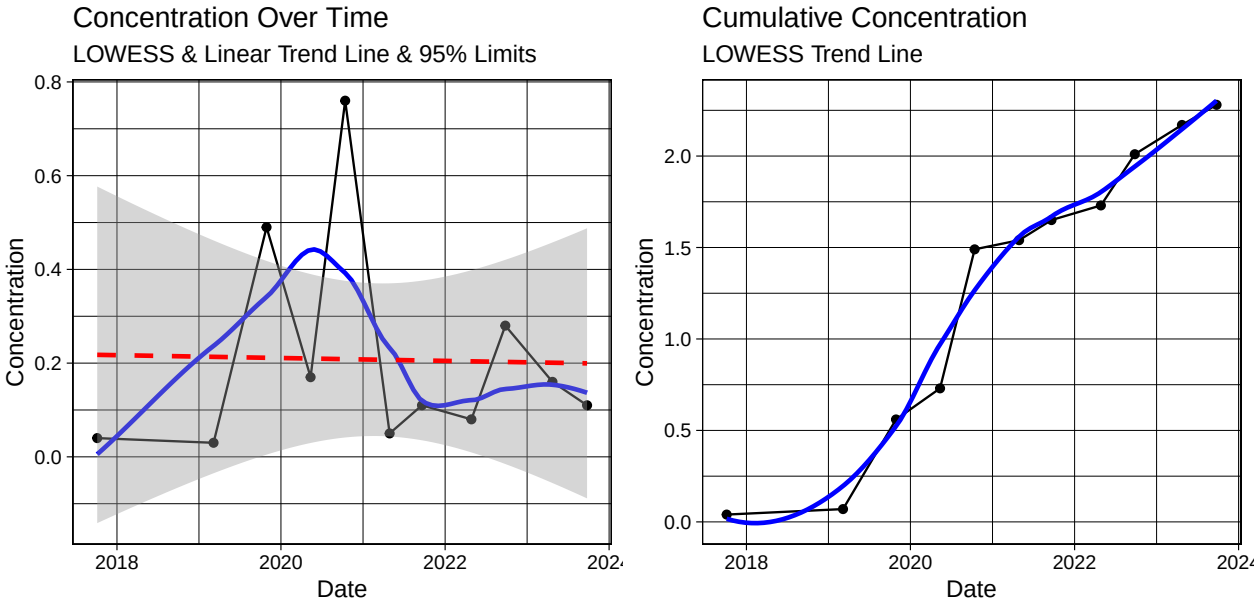
Kendall Trend Test Results Continuous	
n	11
z	2.66
p	0.01
S	35
varS	163
tau	0.65
mean	0.24
sd	0.25
cov	1.05
results	INCREASING

Report for ID : MW132D and Analyte : PFOS



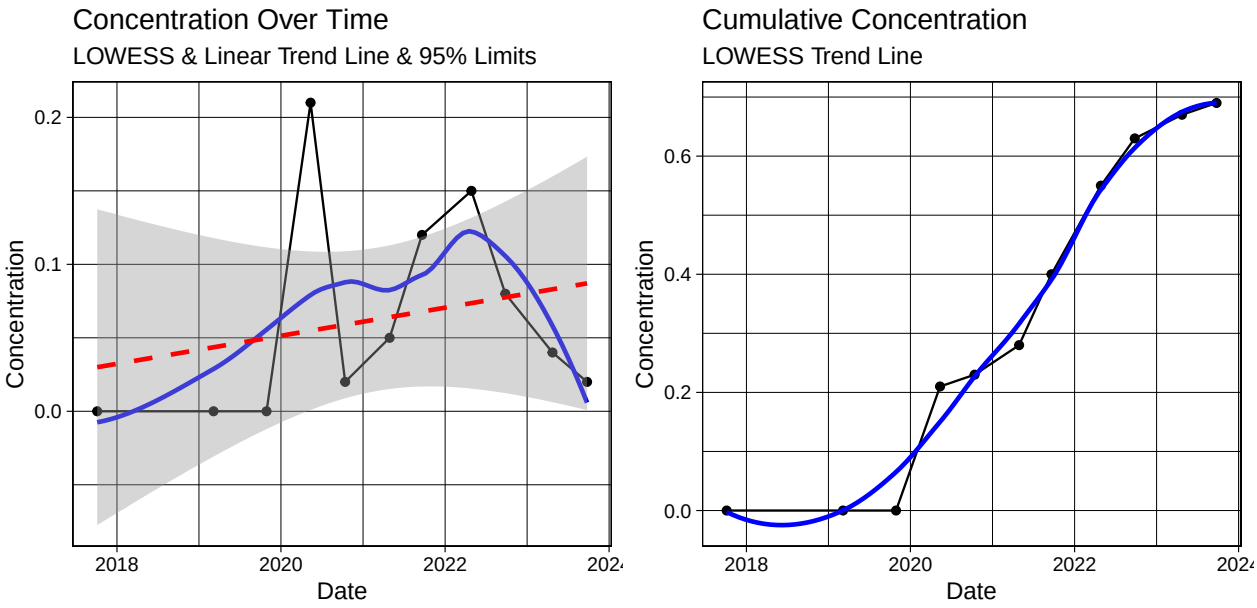
Kendall Trend Test Results Continuous	
n	11
z	0.55
p	0.58
S	8
varS	164
tau	0.15
mean	0.21
sd	0.23
cov	1.09
results	NO CLEAR TREND

Report for ID : MW132S and Analyte : PFOS



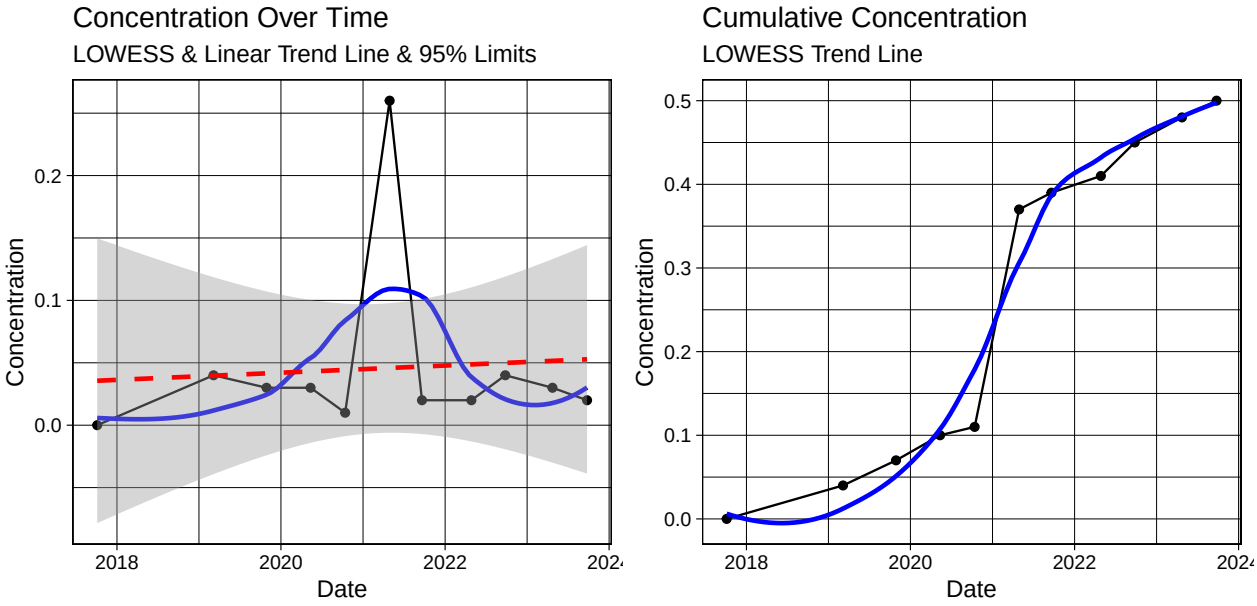
Kendall Trend Test Results Continuous	
n	11
z	1.11
p	0.27
S	15
varS	160.33
tau	0.28
mean	0.06
sd	0.07
cov	1.12
results	NO CLEAR TREND

Report for ID : MW134D and Analyte : PFOS



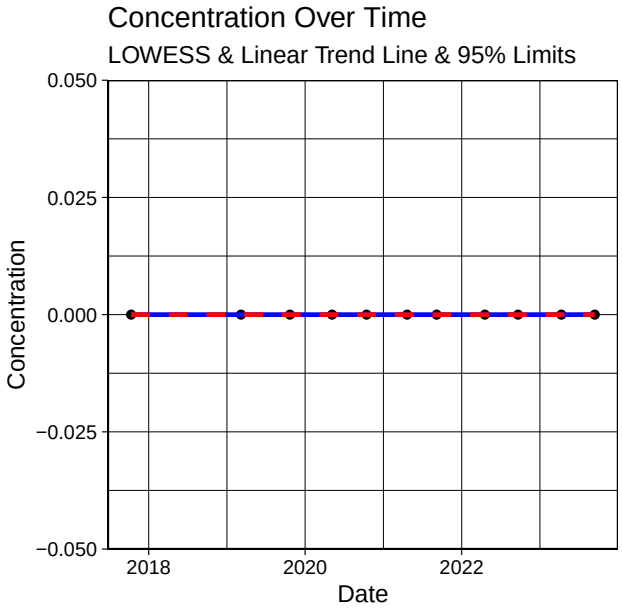
Kendall Trend Test Results Continuous	
n	11
z	0.08
p	0.94
S	2
varS	156.67
tau	0.04
mean	0.05
sd	0.07
cov	1.59
results	NO CLEAR TREND

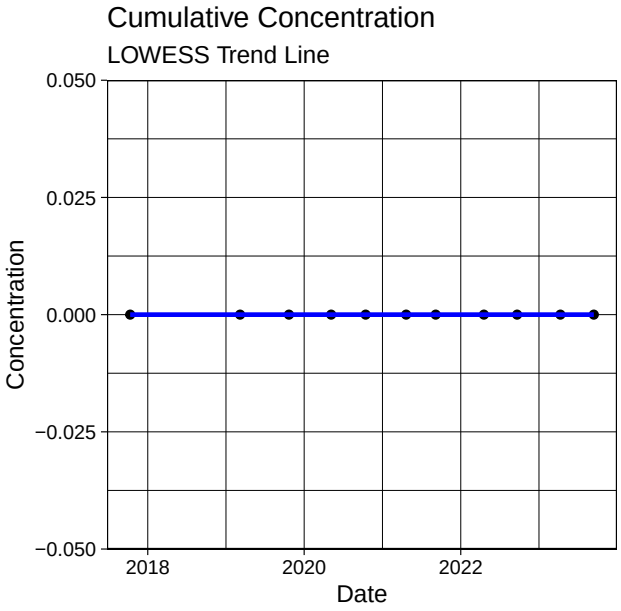
Report for ID : MW134S and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

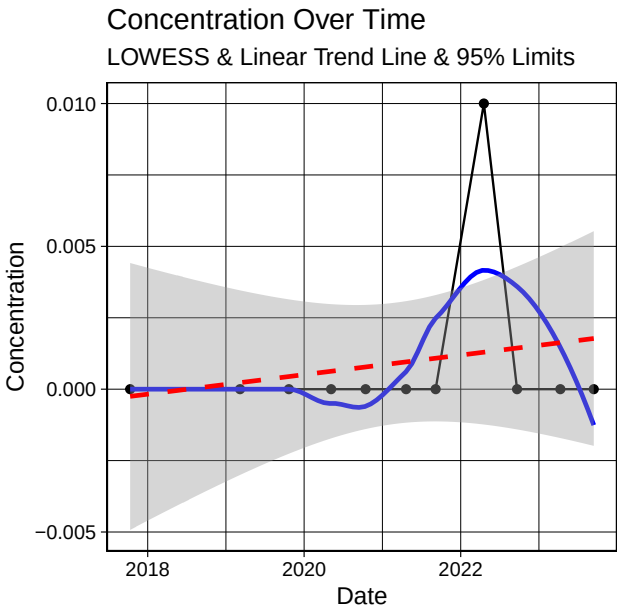
Report for ID : MW136 and Analyte : PFOS

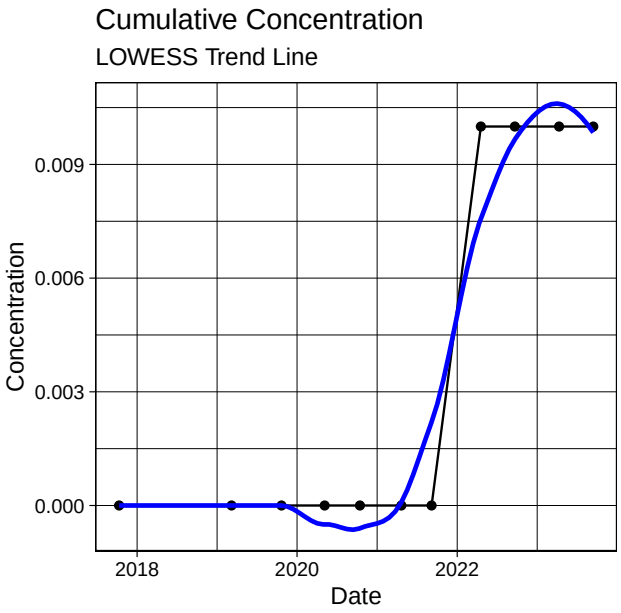




Kendall Trend Test Results Continuous	
n	11
z	0.47
p	0.64
S	4
varS	40
tau	0.17
mean	0
sd	0
cov	3.32
results	NO CLEAR TREND

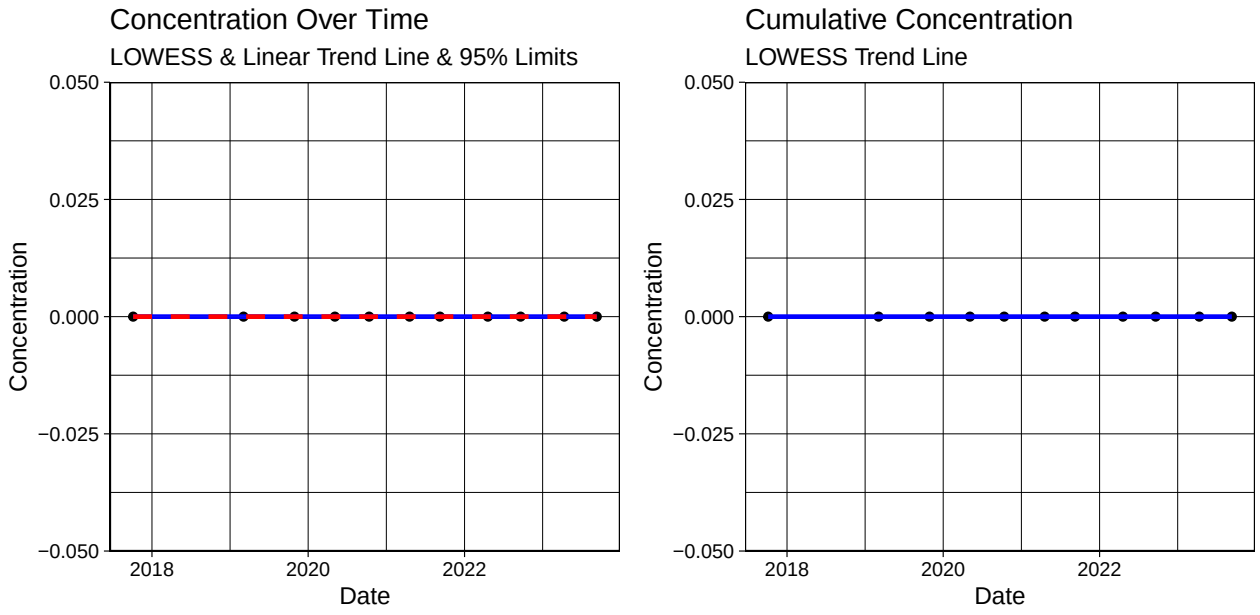
Report for ID : MW137 and Analyte : PFOS





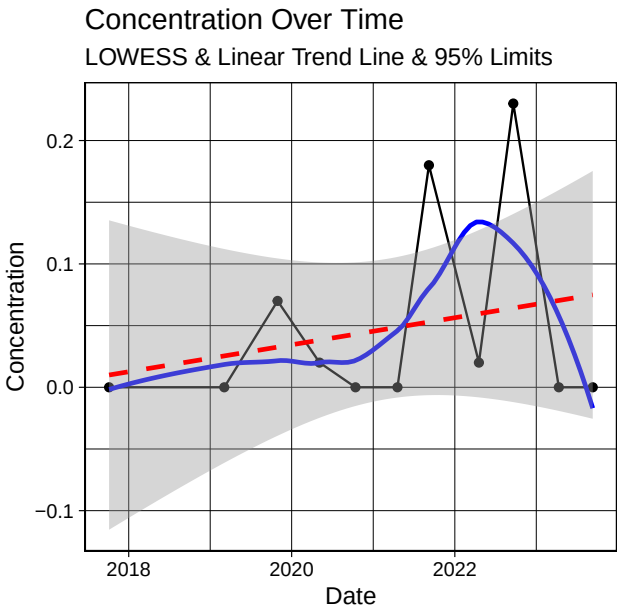
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

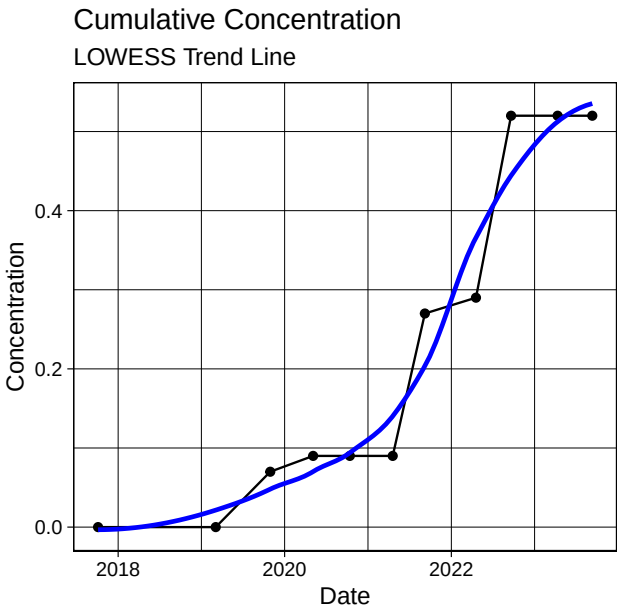
Report for ID : MW138 and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	11
z	0.34
p	0.73
S	5
varS	135.67
tau	0.11
mean	0.05
sd	0.08
cov	1.72
results	NO CLEAR TREND

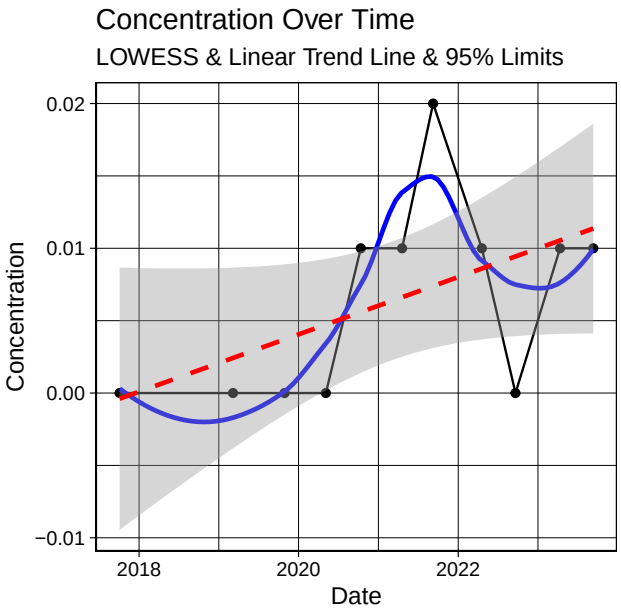
Report for ID : MW139 and Analyte : PFOS

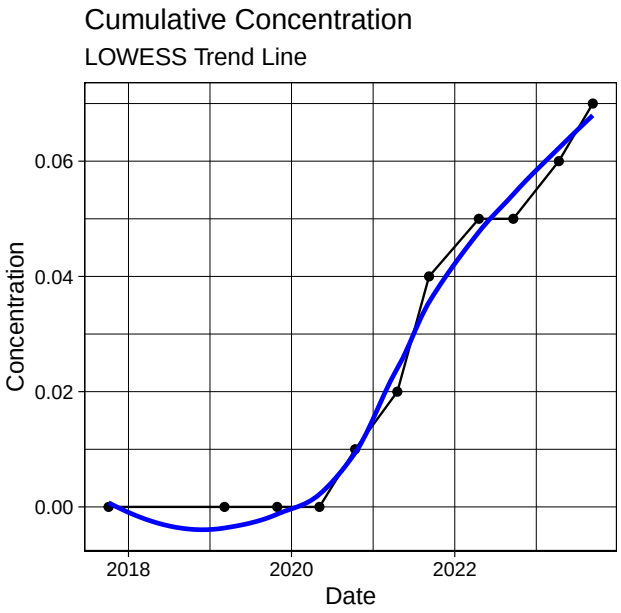




Kendall Trend Test Results Continuous	
n	11
z	1.74
p	0.08
S	21
varS	131.67
tau	0.48
mean	0.01
sd	0.01
cov	1.06
results	POSSIBLY INCREASING

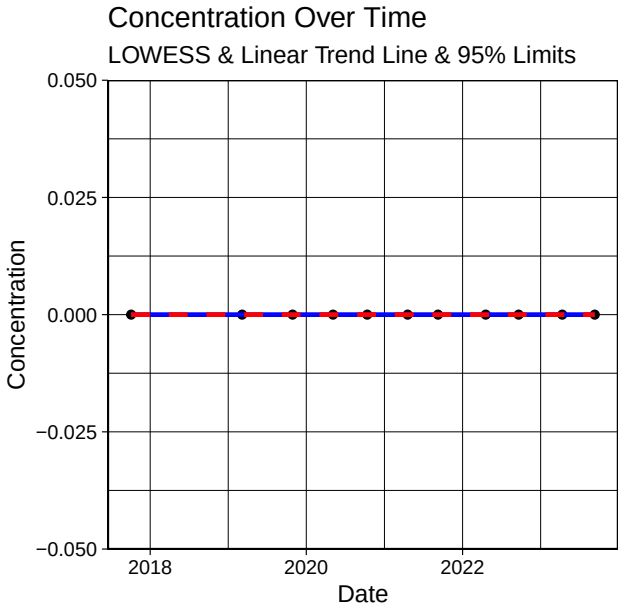
Report for ID : MW140D and Analyte : PFOS

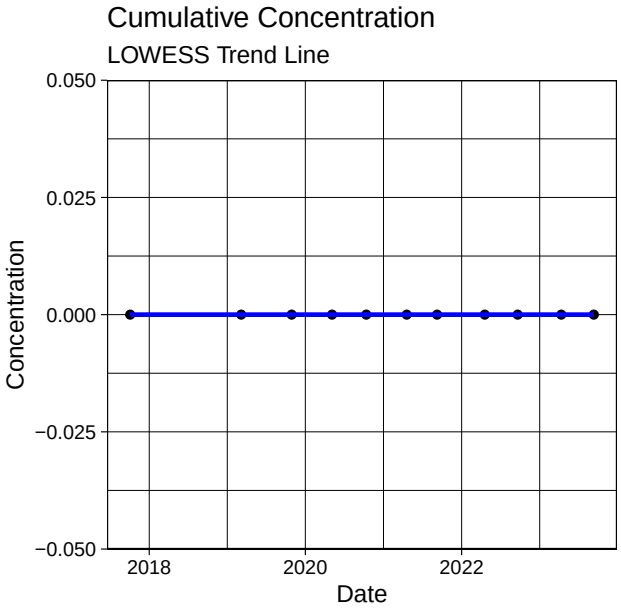




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

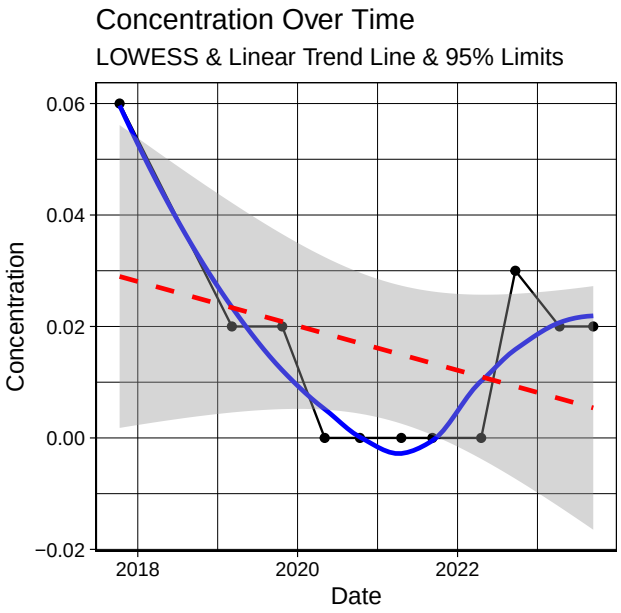
Report for ID : MW140S and Analyte : PFOS

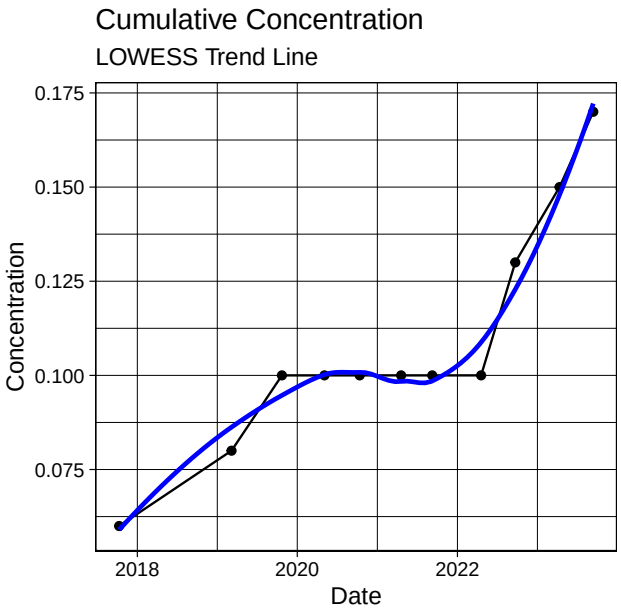




Kendall Trend Test Results Continuous	
n	11
z	-0.34
p	0.74
S	-5
varS	139.67
tau	-0.11
mean	0.02
sd	0.02
cov	1.21
results	NO CLEAR TREND

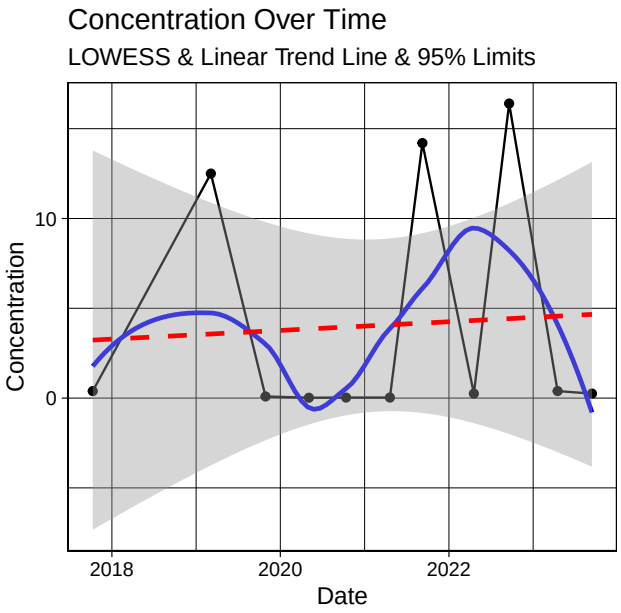
Report for ID : MW146 and Analyte : PFOS

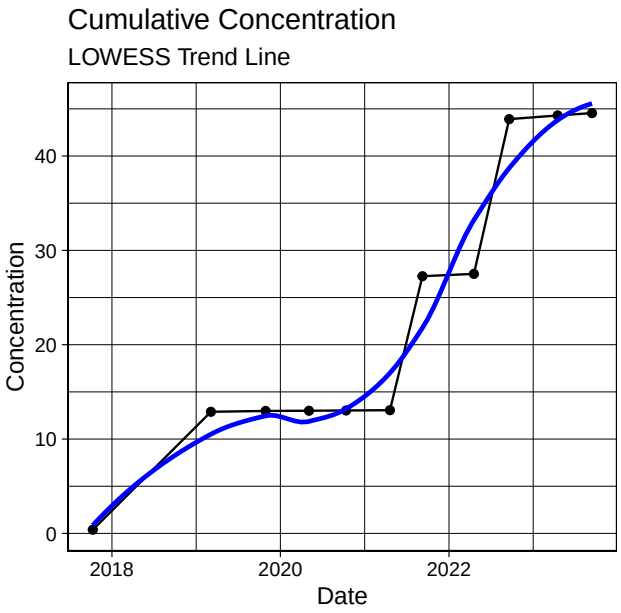




Kendall Trend Test Results Continuous	
n	11
z	0.55
p	0.58
S	8
varS	162
tau	0.15
mean	4.05
sd	6.68
cov	1.65
results	NO CLEAR TREND

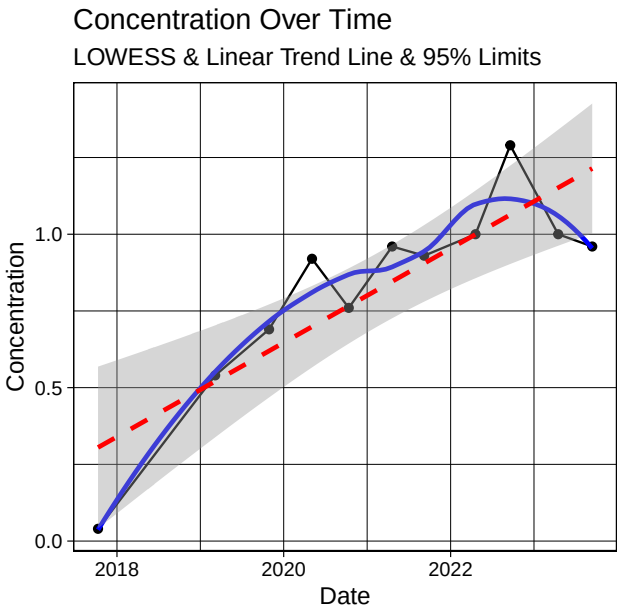
Report for ID : MW149 and Analyte : PFOS

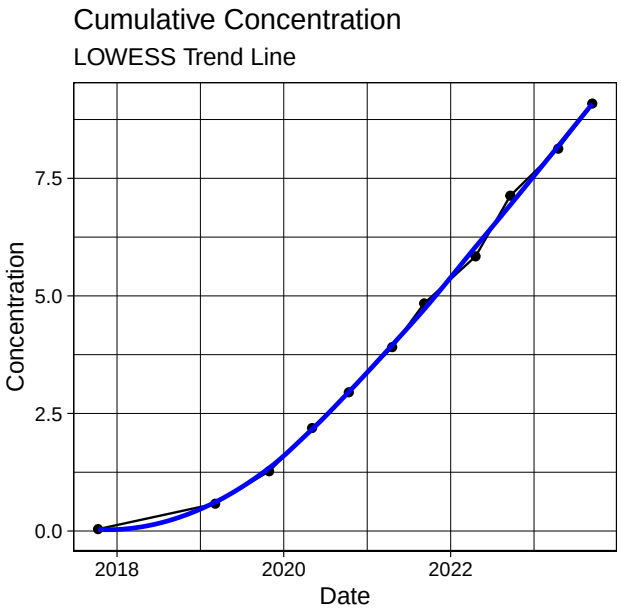




Kendall Trend Test Results Continuous	
n	11
z	3.13
p	0
S	41
varS	163
tau	0.76
mean	0.83
sd	0.32
cov	0.39
results	INCREASING

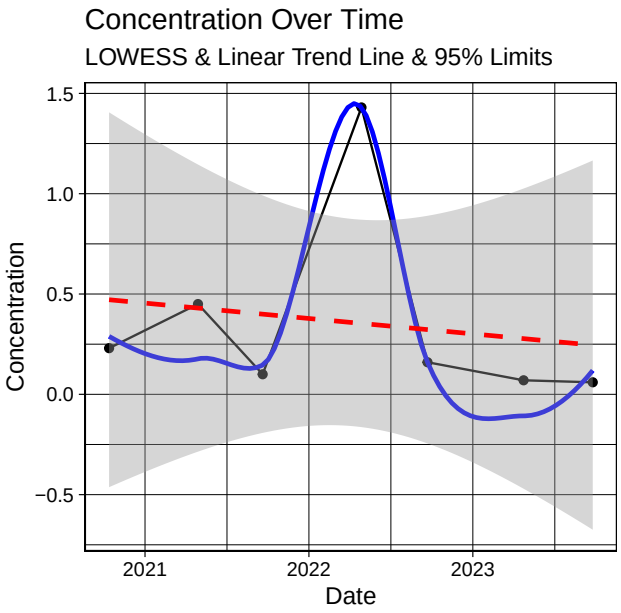
Report for ID : MW150 and Analyte : PFOS

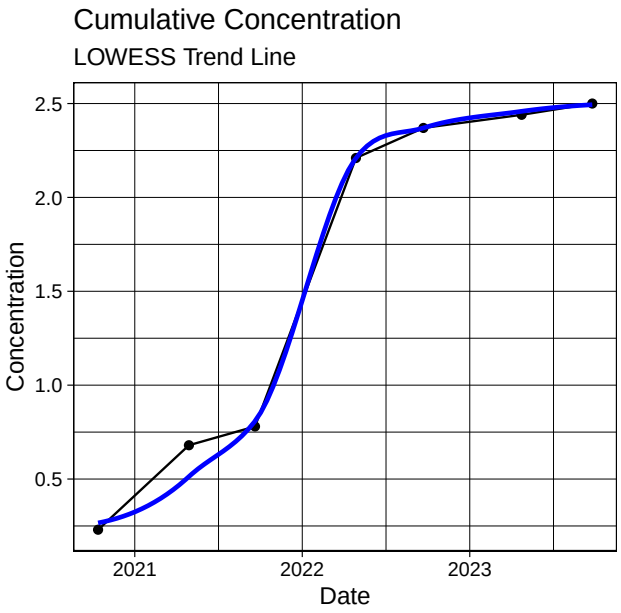




Kendall Trend Test Results Continuous	
n	7
z	-1.5
p	0.13
S	-11
varS	44.33
tau	-0.52
mean	0.36
sd	0.49
cov	1.38
results	NO CLEAR TREND

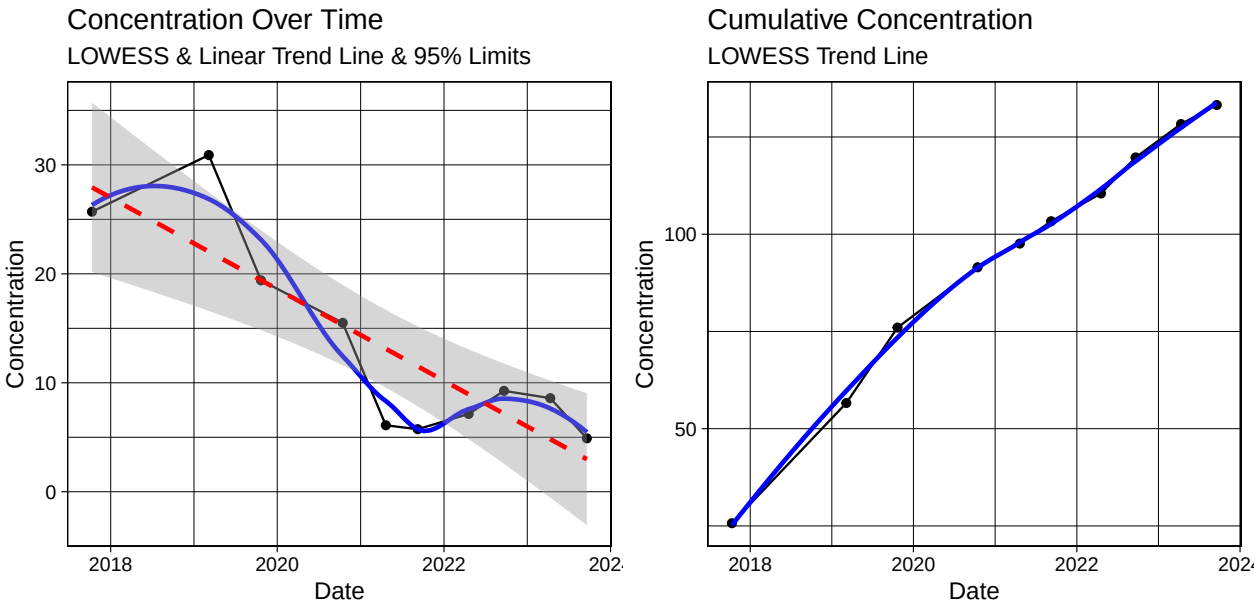
Report for ID : MW155S and Analyte : PFOS





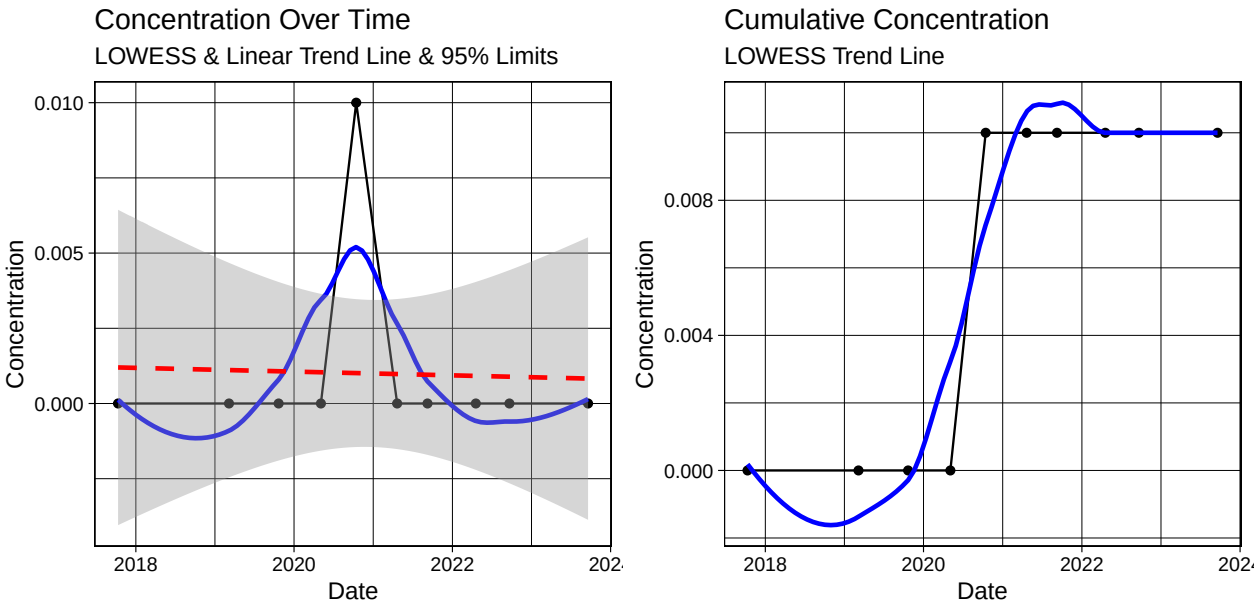
Kendall Trend Test Results Continuous	
n	10
z	-2.33
p	0.02
S	-27
varS	125
tau	-0.6
mean	13.32
sd	9.2
cov	0.69
results	DECREASING

Report for ID : MW202 and Analyte : PFOS



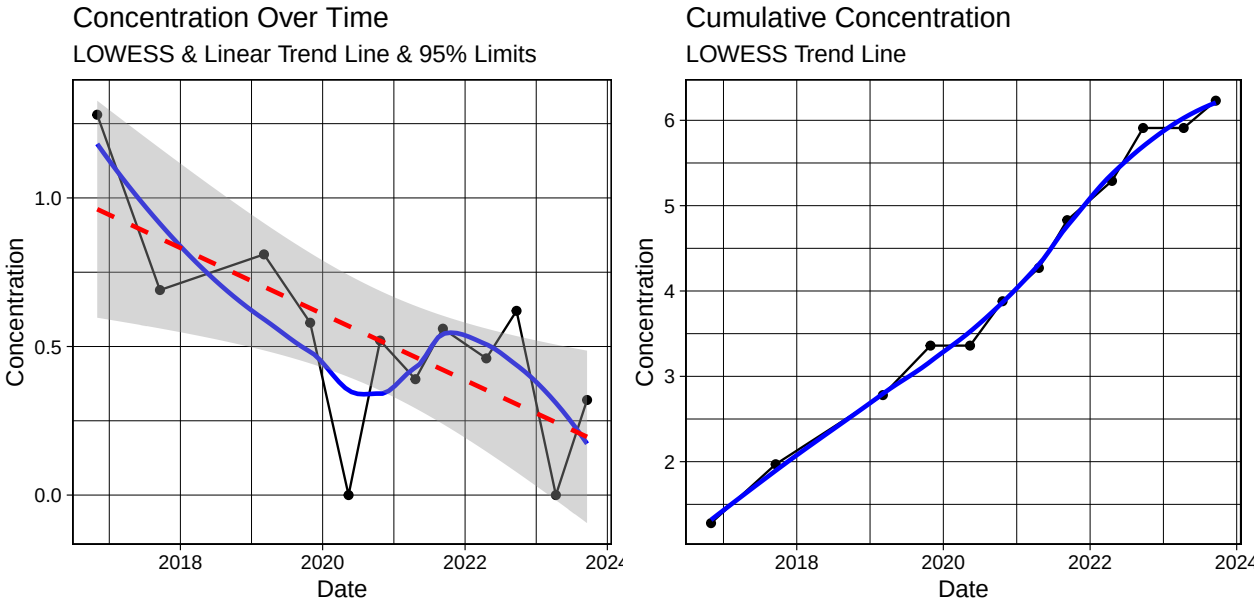
Kendall Trend Test Results Continuous	
n	10
z	0
p	1
S	-1
varS	33
tau	-0.05
mean	0
sd	0
cov	3.16
results	NO CLEAR TREND

Report for ID : MW205 and Analyte : PFOS



Kendall Trend Test Results Continuous	
n	12
z	-2.2
p	0.03
S	-33
varS	211.67
tau	-0.5
mean	0.52
sd	0.34
cov	0.66
results	DECREASING

Report for ID : MW218 and Analyte : PFOS



Trend Report

Report Date & Time: 2024-02-08 01:12:53

Data File Name: MW_PFOSandPFHxSinput.csv

Report Title: Groundwater Trend Data

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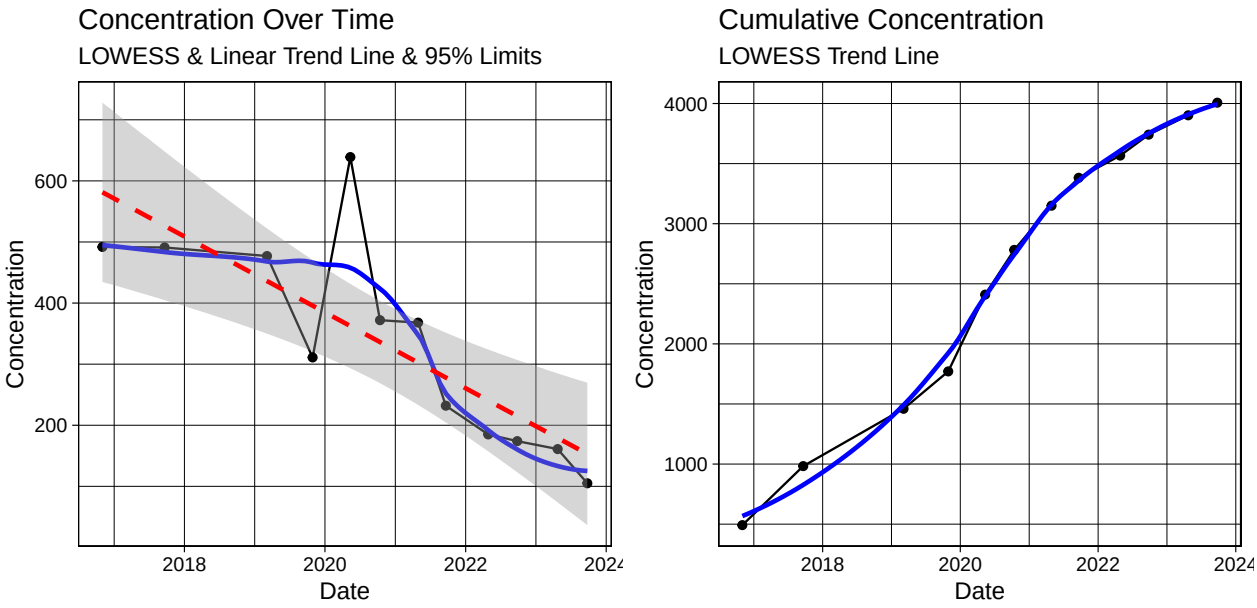
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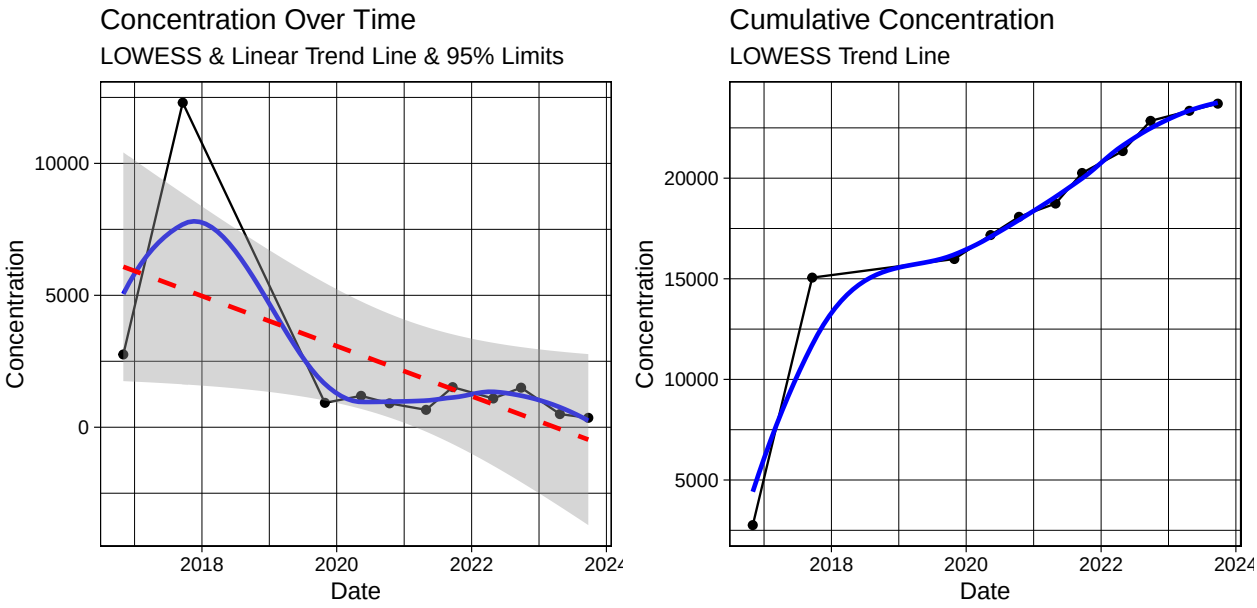
Kendall Trend Test Results Continuous	
n	12
z	-3.63
p	0
S	-54
varS	212.67
tau	-0.82
mean	333.91
sd	166.99
cov	0.5
results	DECREASING

Report for ID : MW015 and Analyte : SumofPFOSandPFHxS



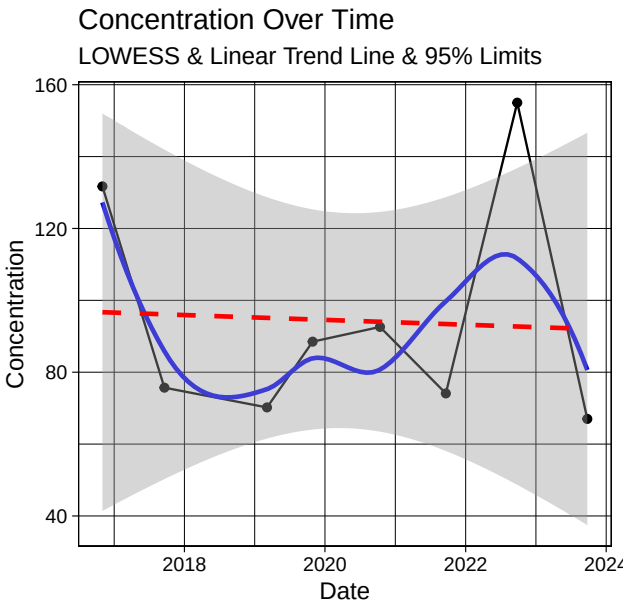
Kendall Trend Test Results Continuous	
n	11
z	-2.02
p	0.04
S	-27
varS	165
tau	-0.49
mean	2154.91
sd	3427.37
cov	1.59
results	DECREASING

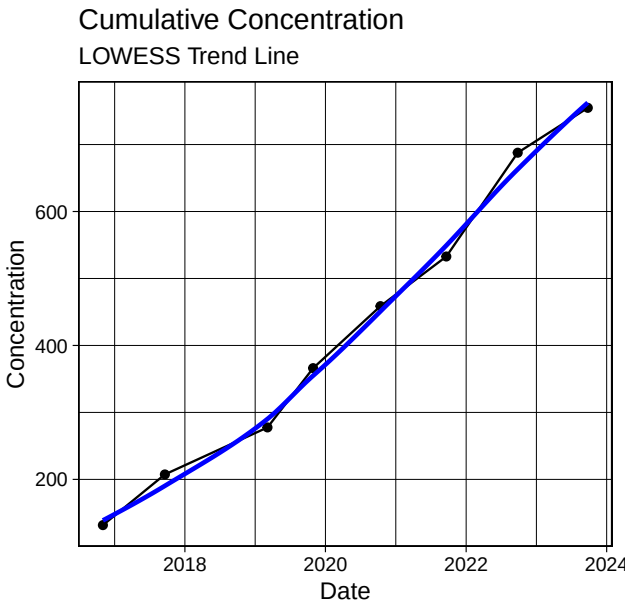
Report for ID : MW052 and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	8
z	-0.37
p	0.71
S	-4
varS	65.33
tau	-0.14
mean	94.35
sd	32.07
cov	0.34
results	STABLE

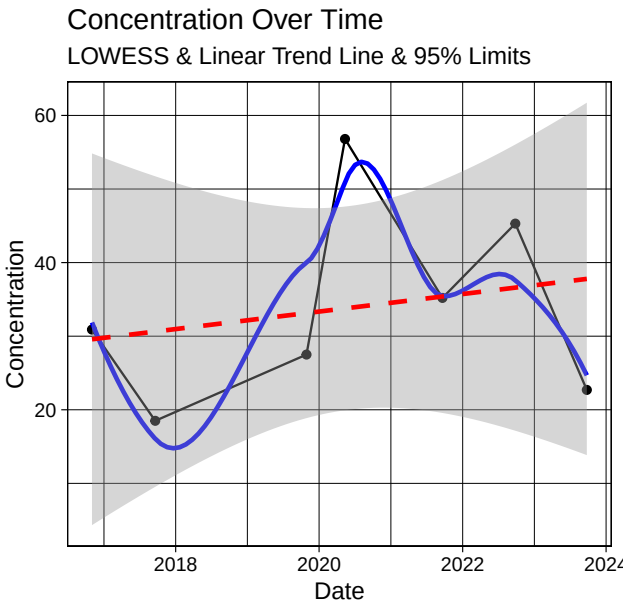
Report for ID : MW053 and Analyte : SumofPFOSandPFHxS

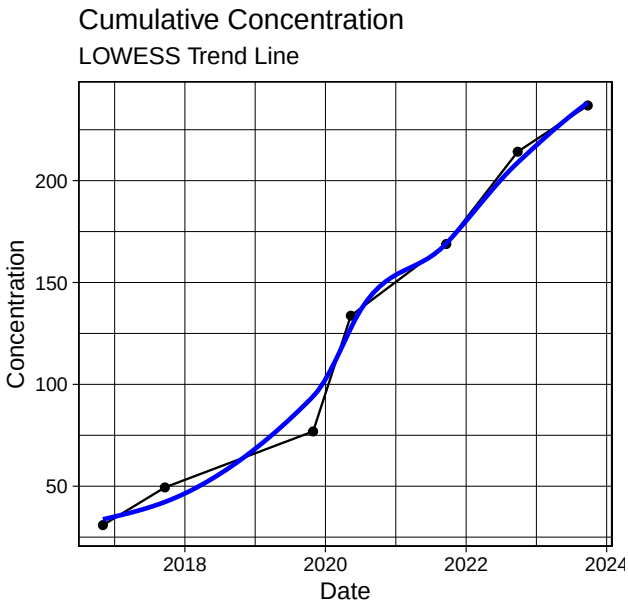




Kendall Trend Test Results Continuous	
n	7
z	0.3
p	0.76
S	3
varS	44.33
tau	0.14
mean	33.84
sd	13.35
cov	0.39
results	NO CLEAR TREND

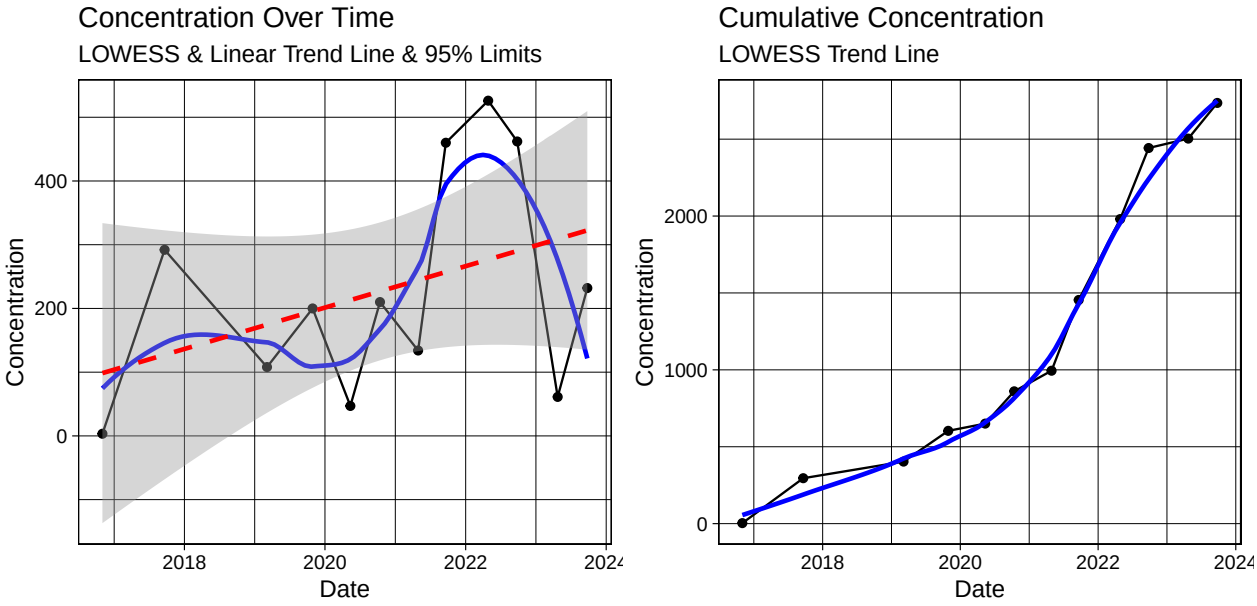
Report for ID : MW055 and Analyte : SumofPFOSandPFHxS





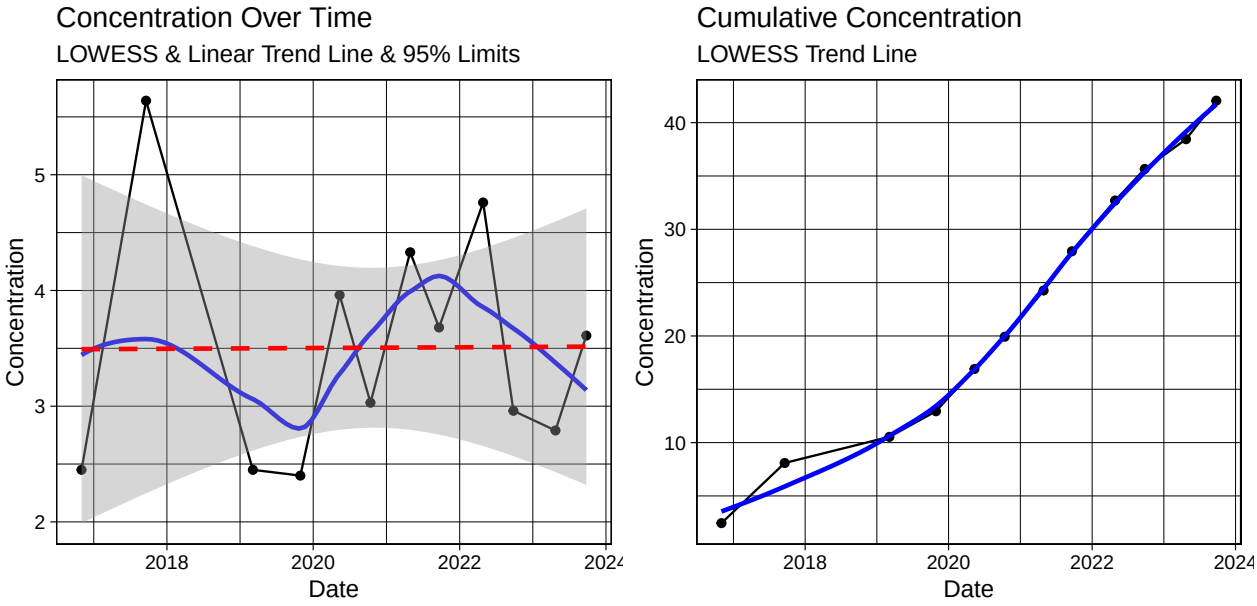
Kendall Trend Test Results Continuous	
n	12
z	1.44
p	0.15
S	22
varS	212.67
tau	0.33
mean	227.96
sd	175
cov	0.77
results	NO CLEAR TREND

Report for ID : MW101 and Analyte : SumofPFOSandPFHxS



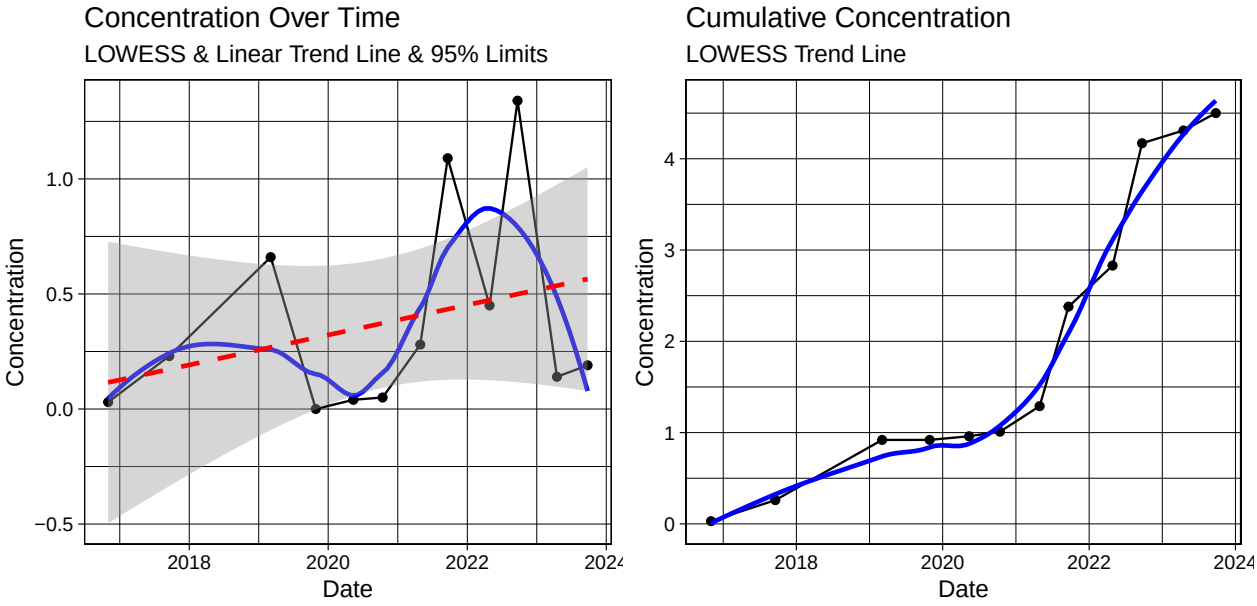
Kendall Trend Test Results Continuous	
n	12
z	0.27
p	0.78
S	5
varS	211.67
tau	0.08
mean	3.5
sd	1.02
cov	0.29
results	NO CLEAR TREND

Report for ID : MW102 and Analyte : SumofPFOSandPFHxS



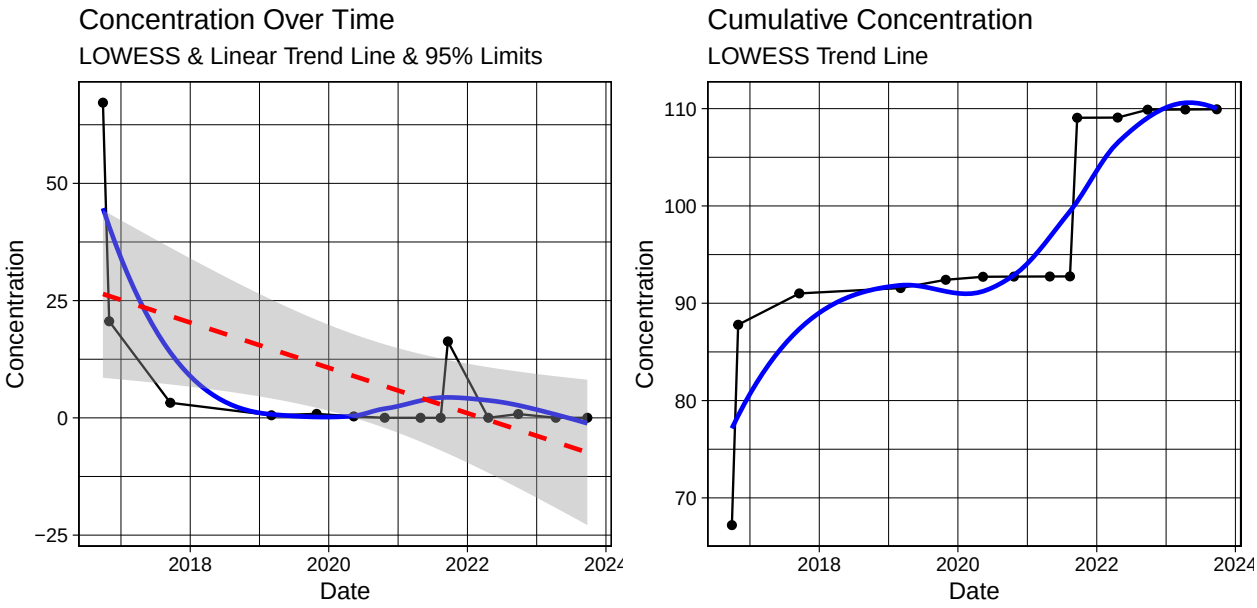
Kendall Trend Test Results Continuous	
n	12
z	1.44
p	0.15
S	22
varS	212.67
tau	0.33
mean	0.38
sd	0.44
cov	1.17
results	NO CLEAR TREND

Report for ID : MW103 and Analyte : SumofPFOSandPFHxS



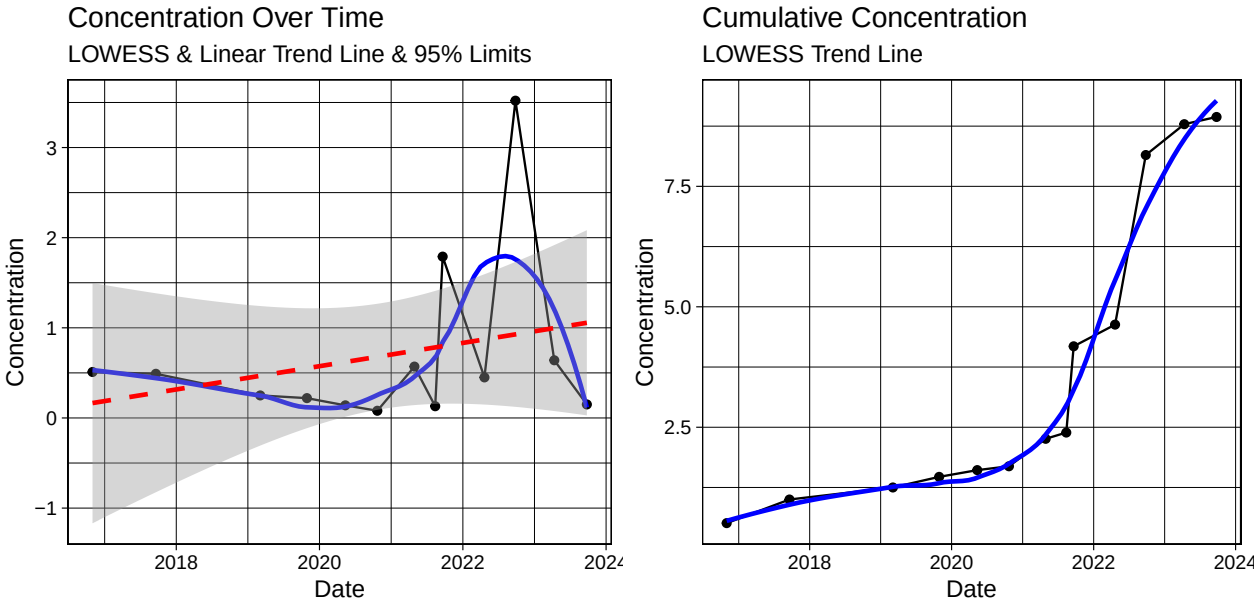
Kendall Trend Test Results Continuous	
n	14
z	-2.39
p	0.02
S	-44
varS	324
tau	-0.5
mean	7.85
sd	18.3
cov	2.33
results	DECREASING

Report for ID : MW104 and Analyte : SumofPFOSandPFHxS



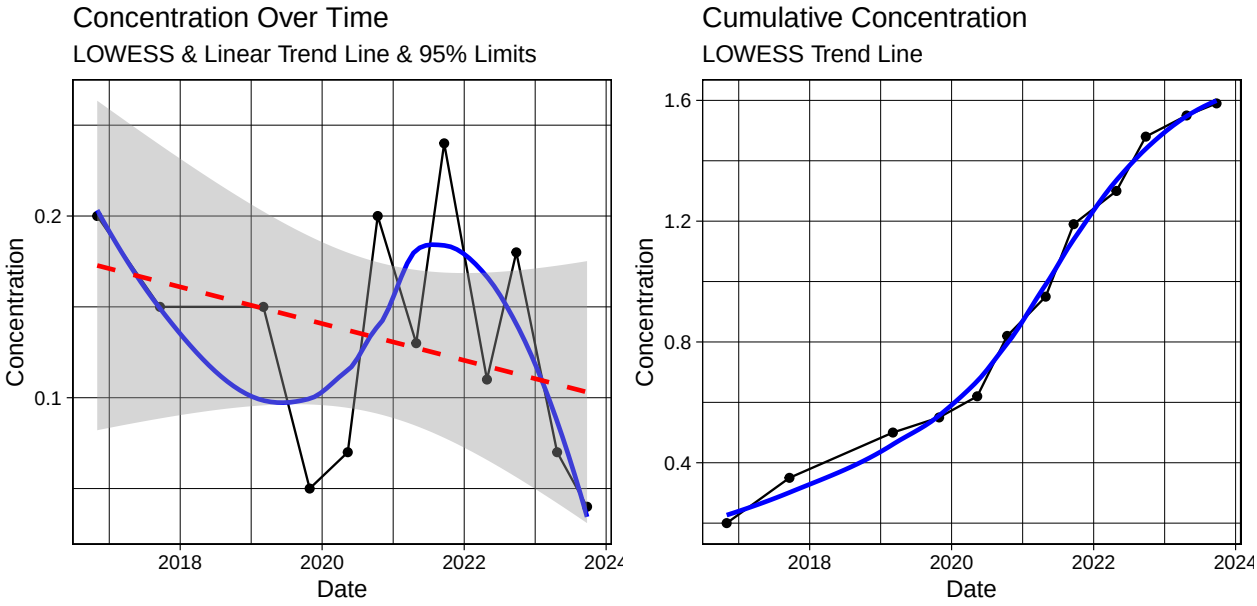
Kendall Trend Test Results Continuous	
n	13
z	0.31
p	0.76
S	6
varS	268.67
tau	0.08
mean	0.69
sd	0.96
cov	1.4
results	NO CLEAR TREND

Report for ID : MW105 and Analyte : SumofPFOSandPFHxS



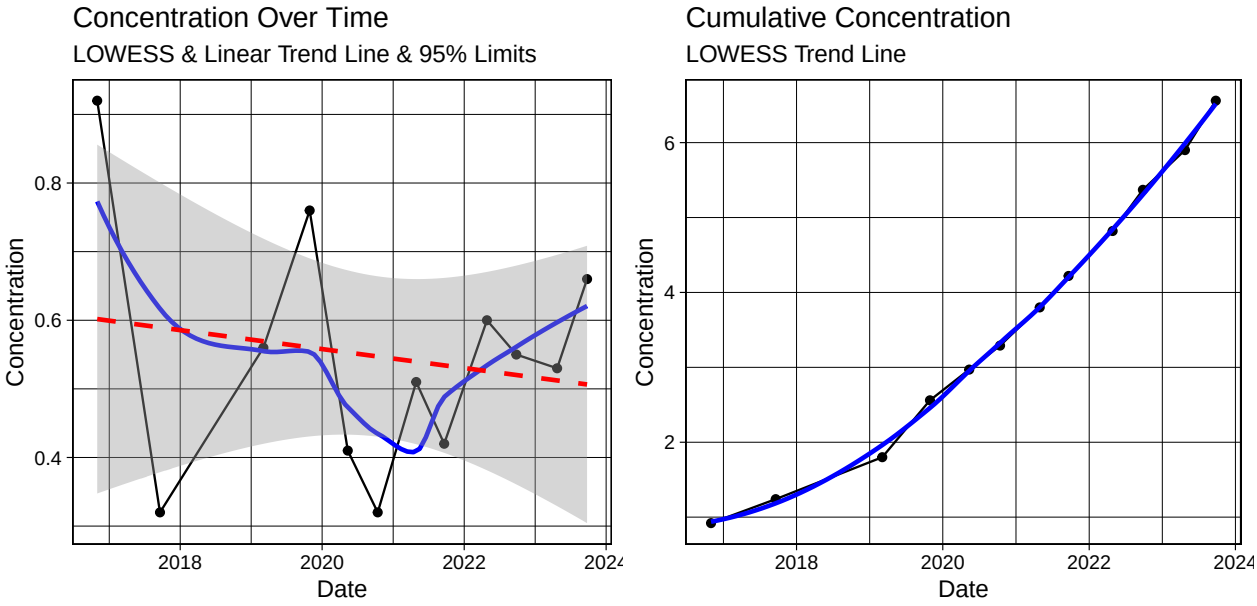
Kendall Trend Test Results Continuous	
n	12
z	-1.1
p	0.27
S	-17
varS	209.67
tau	-0.26
mean	0.13
sd	0.07
cov	0.49
results	STABLE

Report for ID : MW107 and Analyte : SumofPFOSandPFHxS



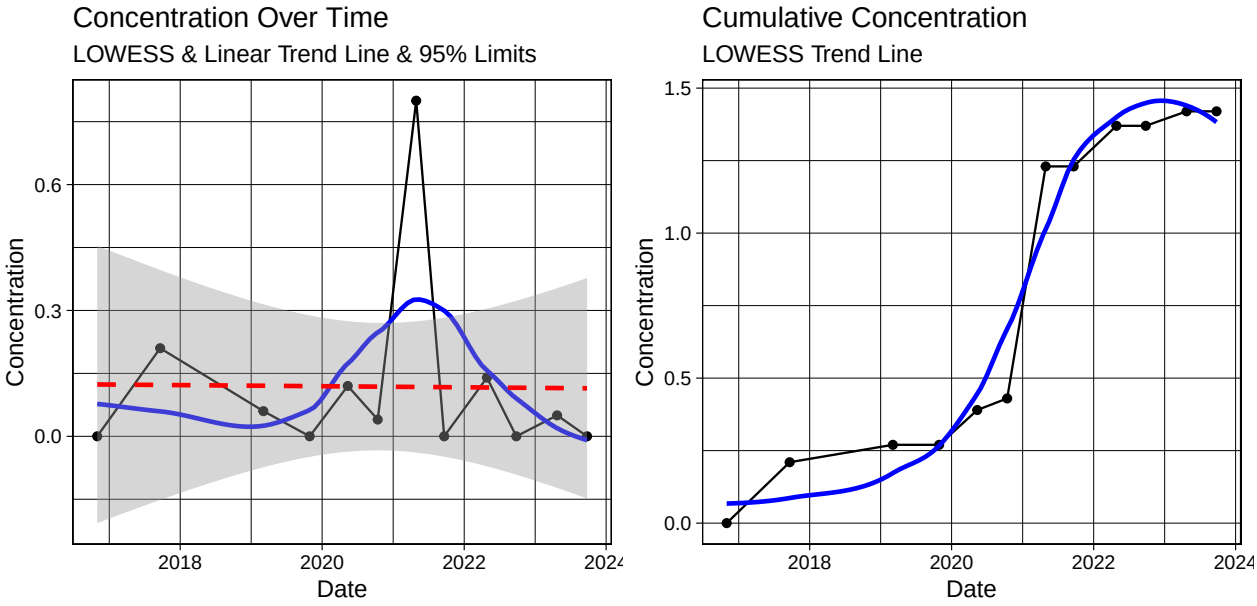
Kendall Trend Test Results Continuous	
n	12
z	0.27
p	0.78
S	5
varS	211.67
tau	0.08
mean	0.55
sd	0.18
cov	0.32
results	NO CLEAR TREND

Report for ID : MW109 and Analyte : SumofPFOSandPFHxS



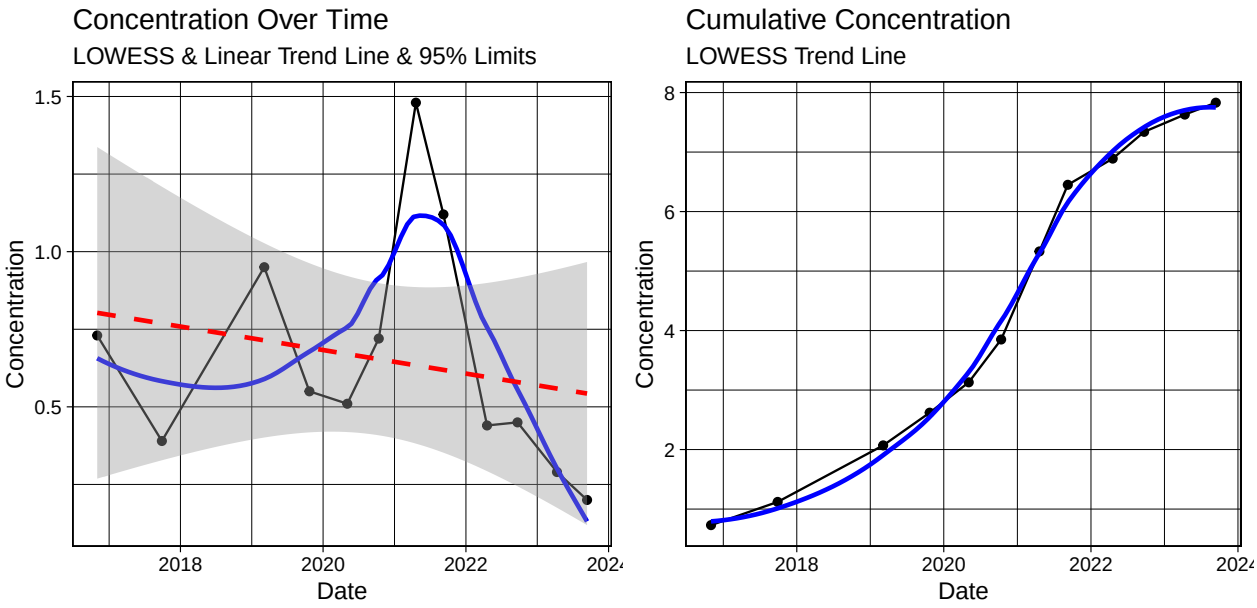
Kendall Trend Test Results Continuous	
n	12
z	-0.5
p	0.62
S	-8
varS	196
tau	-0.13
mean	0.12
sd	0.23
cov	1.9
results	NO CLEAR TREND

Report for ID : MW110 and Analyte : SumofPFOSandPFHxS



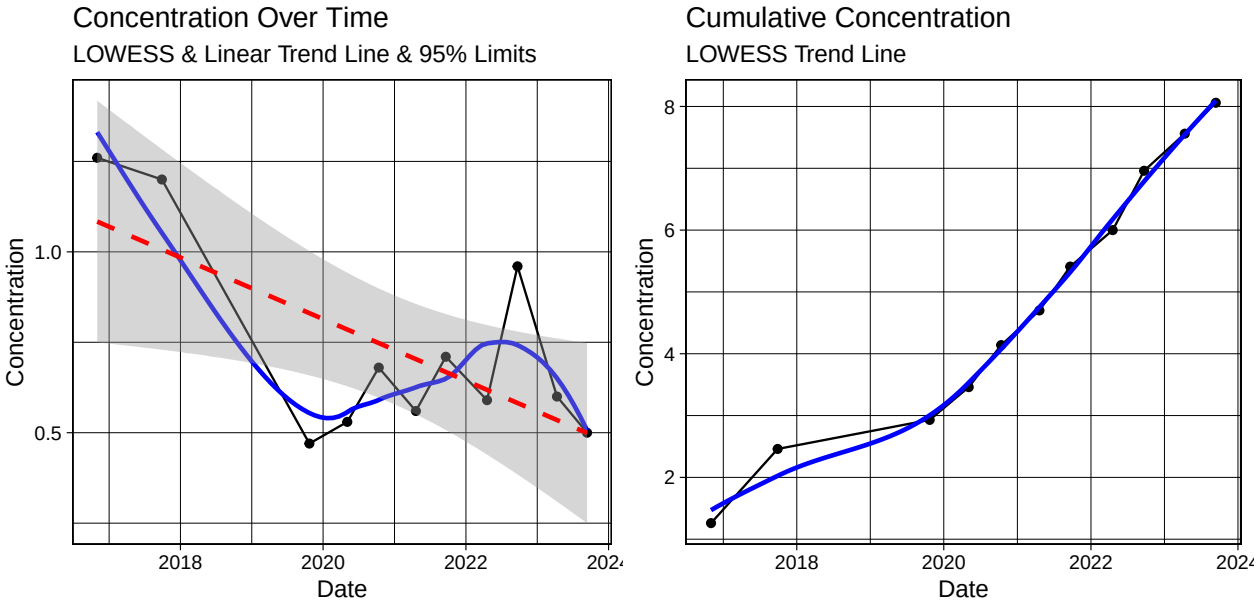
Kendall Trend Test Results Continuous	
n	12
z	-1.44
p	0.15
S	-22
varS	212.67
tau	-0.33
mean	0.65
sd	0.37
cov	0.57
results	STABLE

Report for ID : MW112 and Analyte : SumofPFOSandPFHxS



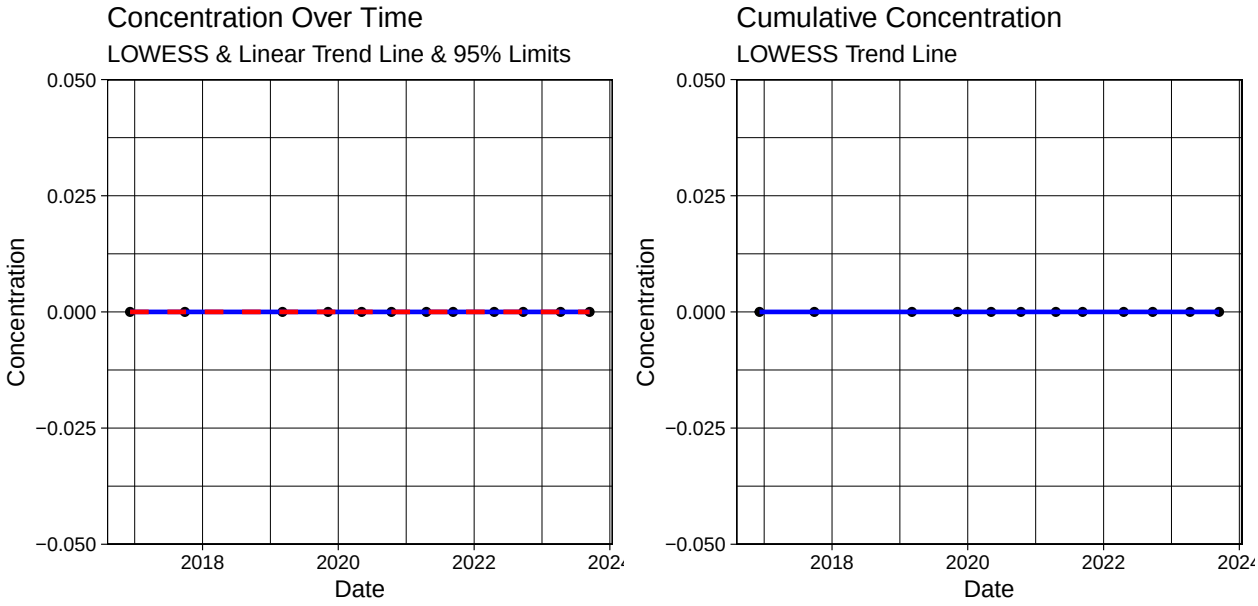
Kendall Trend Test Results Continuous	
n	11
z	-0.62
p	0.53
S	-9
varS	165
tau	-0.16
mean	0.73
sd	0.28
cov	0.38
results	STABLE

Report for ID : MW113 and Analyte : SumofPFOSandPFHxS



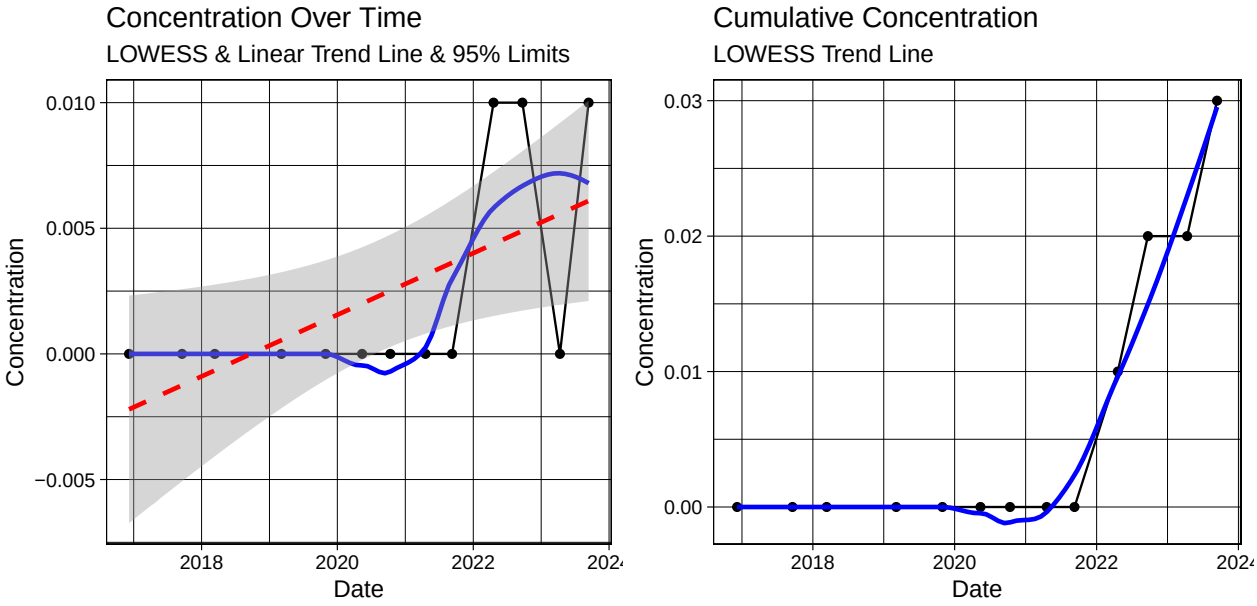
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW114 and Analyte : SumofPFOSandPFHxS



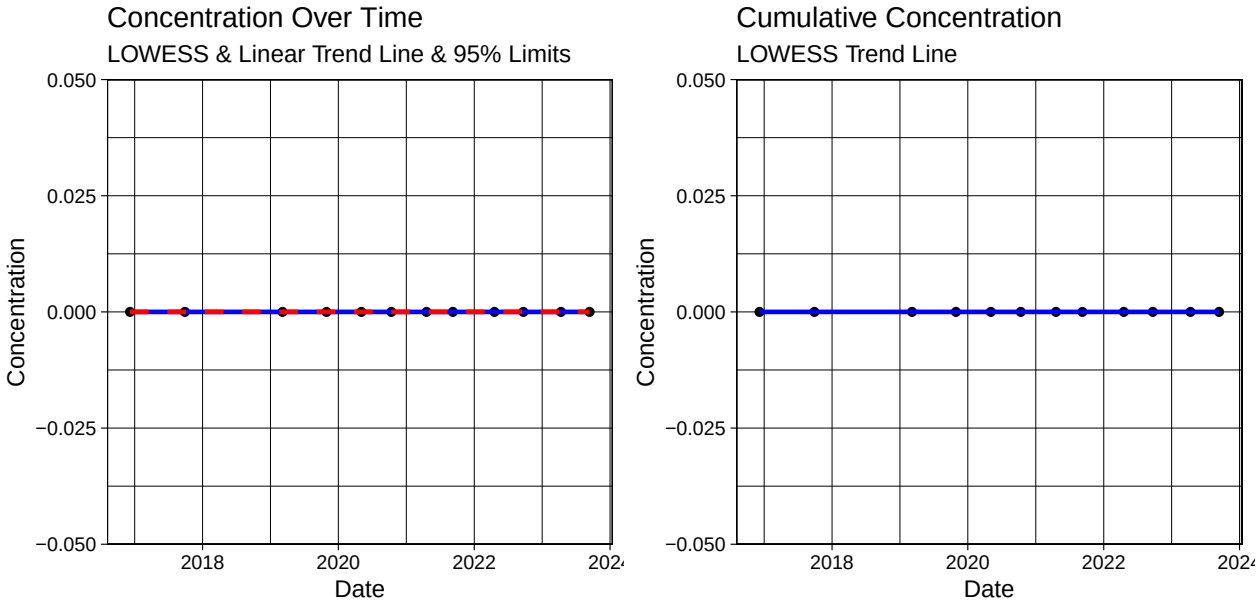
Kendall Trend Test Results Continuous	
n	13
z	2.11
p	0.03
S	26
varS	140
tau	0.54
mean	0
sd	0
cov	1.9
results	INCREASING

Report for ID : MW115 and Analyte : SumofPFOSandPFHxS



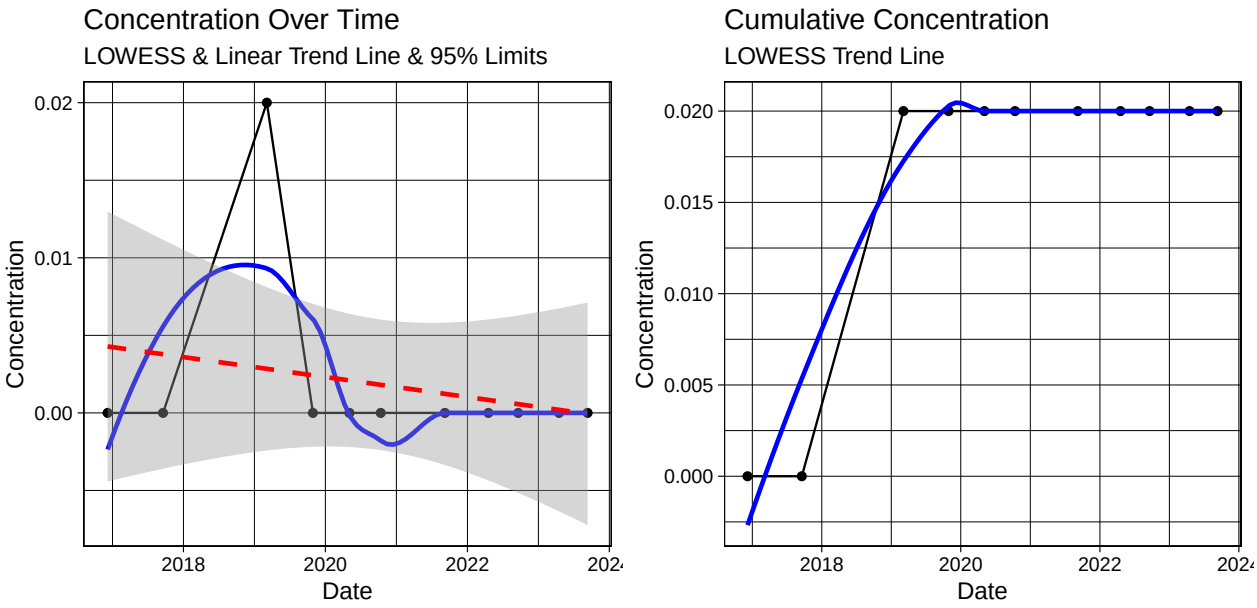
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW116 and Analyte : SumofPFOSandPFHxS



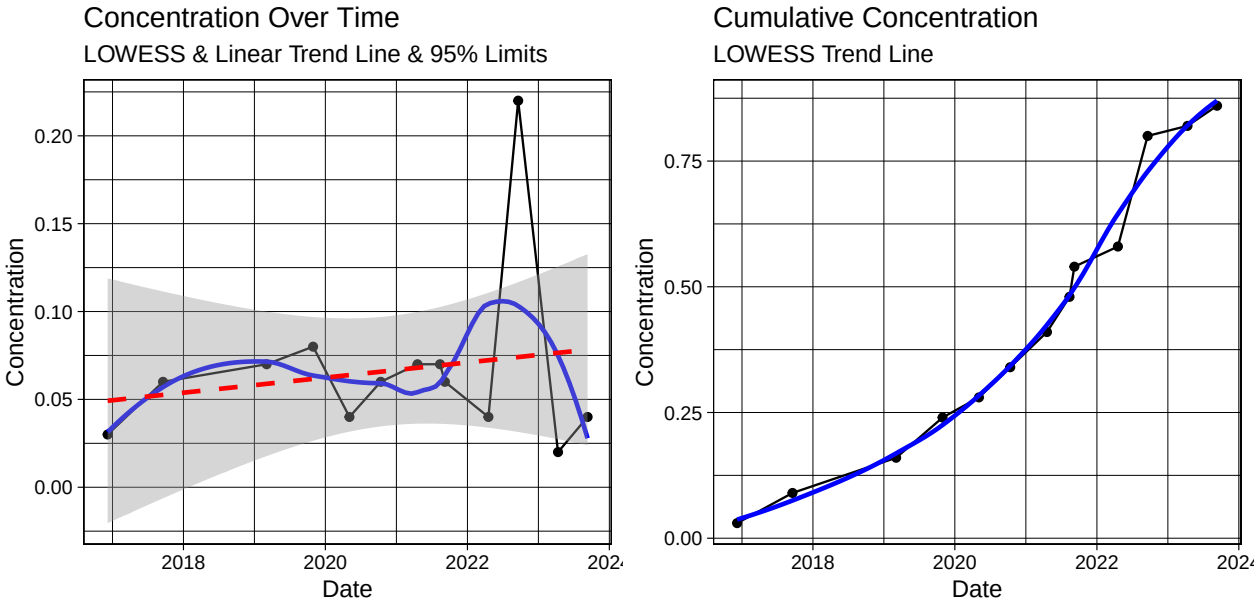
Kendall Trend Test Results Continuous	
n	11
z	-0.79
p	0.43
S	-6
varS	40
tau	-0.26
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

Report for ID : MW117 and Analyte : SumofPFOSandPFHxS



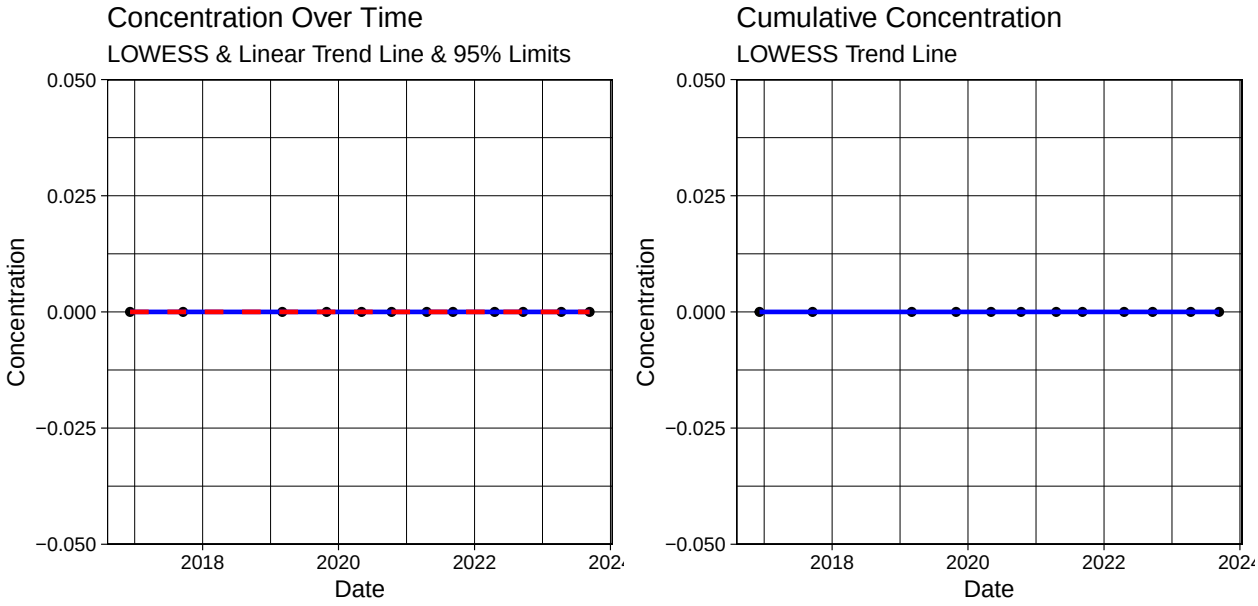
Kendall Trend Test Results Continuous	
n	13
z	-0.25
p	0.8
S	-5
varS	257.67
tau	-0.07
mean	0.07
sd	0.05
cov	0.75
results	STABLE

Report for ID : MW118 and Analyte : SumofPFOSandPFHxS



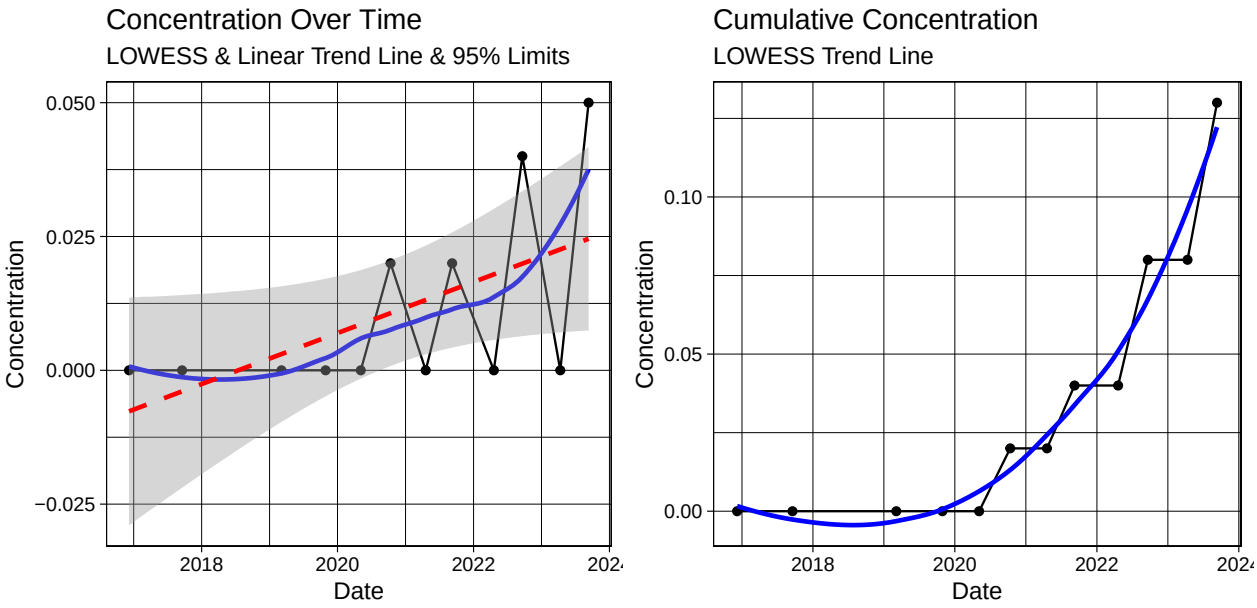
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW119 and Analyte : SumofPFOSandPFHxS



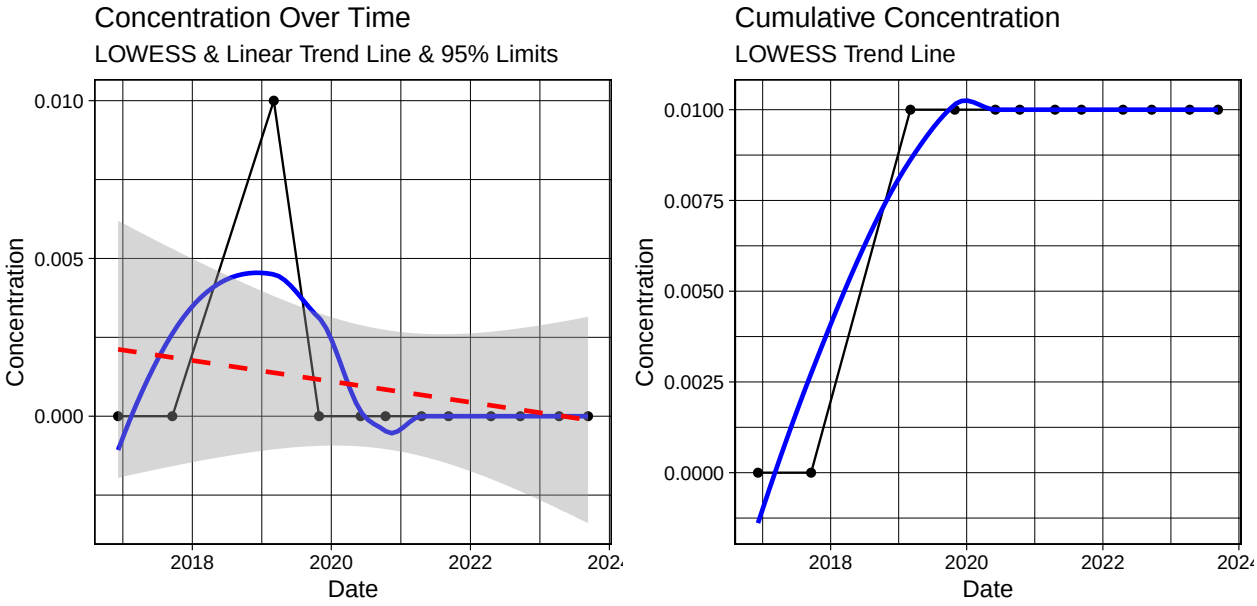
Kendall Trend Test Results Continuous	
n	12
z	1.98
p	0.05
S	25
varS	146.33
tau	0.51
mean	0.01
sd	0.02
cov	1.64
results	INCREASING

Report for ID : MW120 and Analyte : SumofPFOSandPFHxS



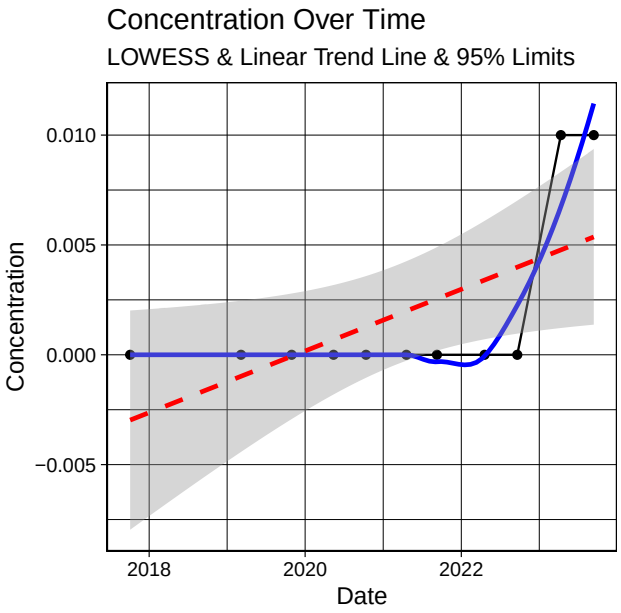
Kendall Trend Test Results Continuous	
n	12
z	-0.87
p	0.38
S	-7
varS	47.67
tau	-0.26
mean	0
sd	0
cov	3.46
results	NO CLEAR TREND

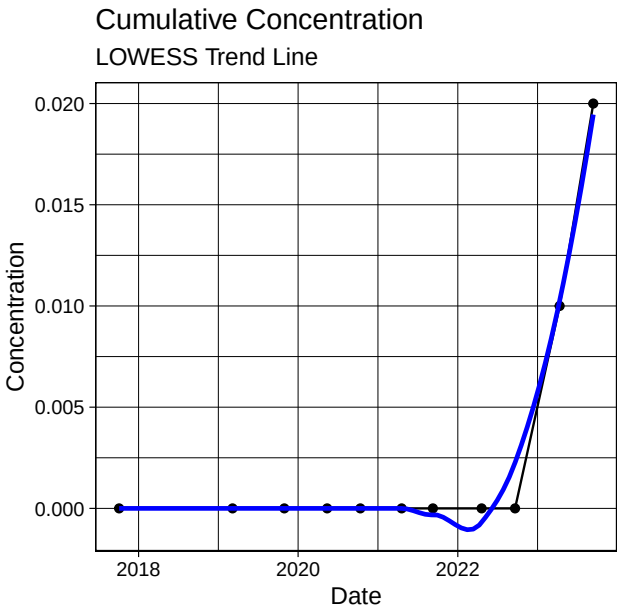
Report for ID : MW121 and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	2
p	0.05
S	18
varS	72
tau	0.57
mean	0
sd	0
cov	2.22
results	INCREASING

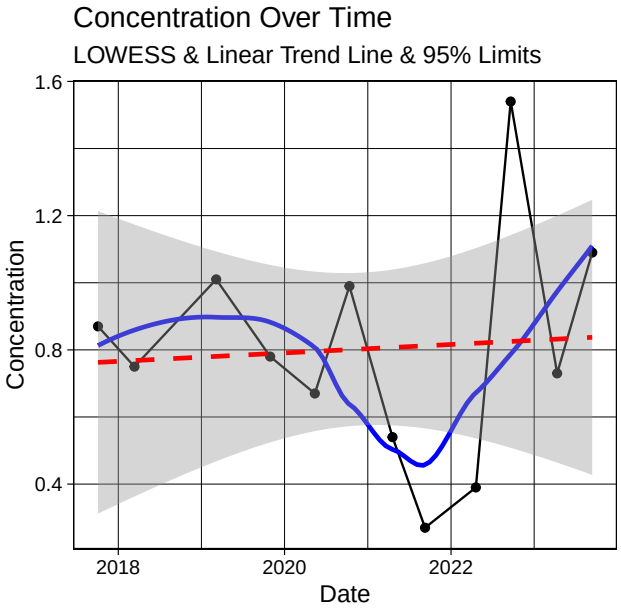
Report for ID : MW122D and Analyte : SumofPFOSandPFHxS

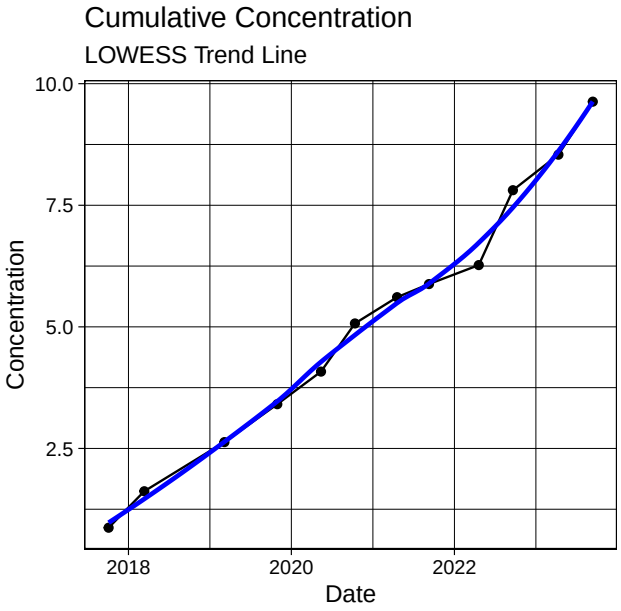




Kendall Trend Test Results Continuous	
n	12
z	-0.21
p	0.84
S	-4
varS	212.67
tau	-0.06
mean	0.8
sd	0.34
cov	0.42
results	STABLE

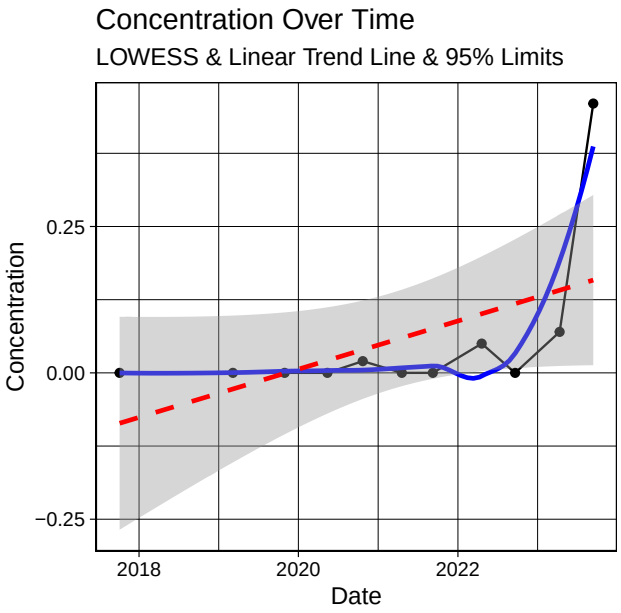
Report for ID : MW122S and Analyte : SumofPFOSandPFHxS

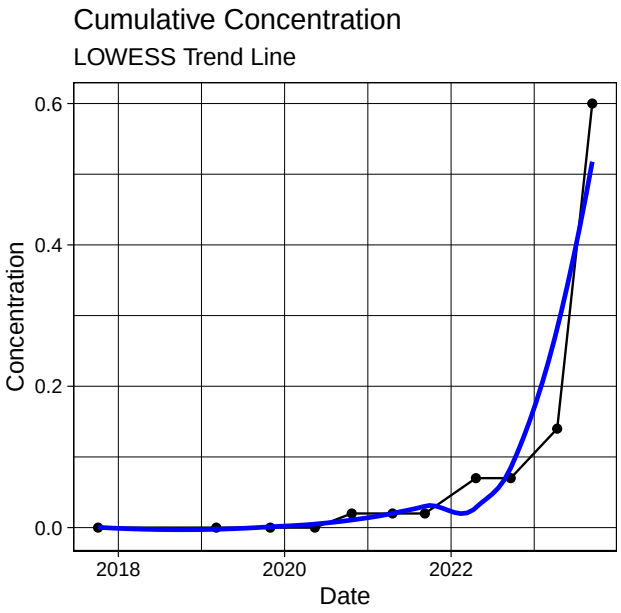




Kendall Trend Test Results Continuous	
n	11
z	2.28
p	0.02
S	26
varS	120.67
tau	0.6
mean	0.05
sd	0.14
cov	2.5
results	INCREASING

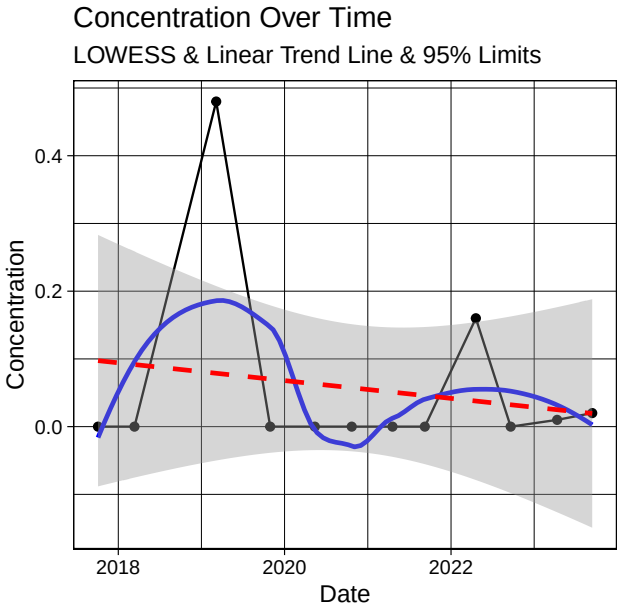
Report for ID : MW123D and Analyte : SumofPFOSandPFHxS

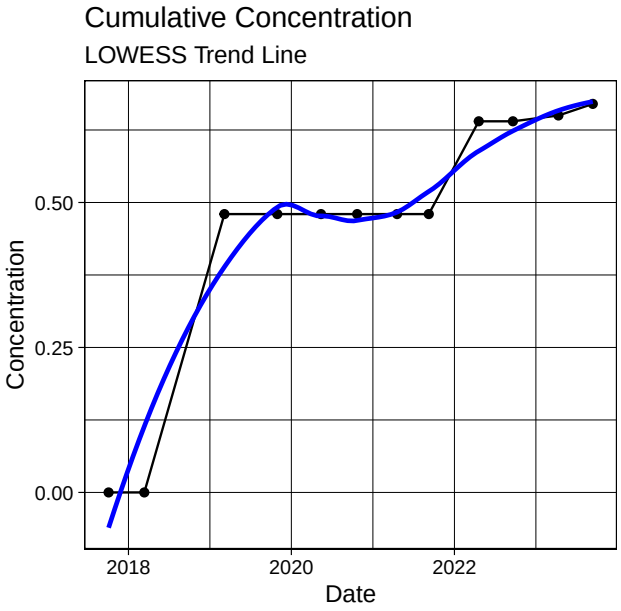




Kendall Trend Test Results Continuous	
n	12
z	1.07
p	0.28
S	14
varS	147.33
tau	0.28
mean	0.06
sd	0.14
cov	2.53
results	NO CLEAR TREND

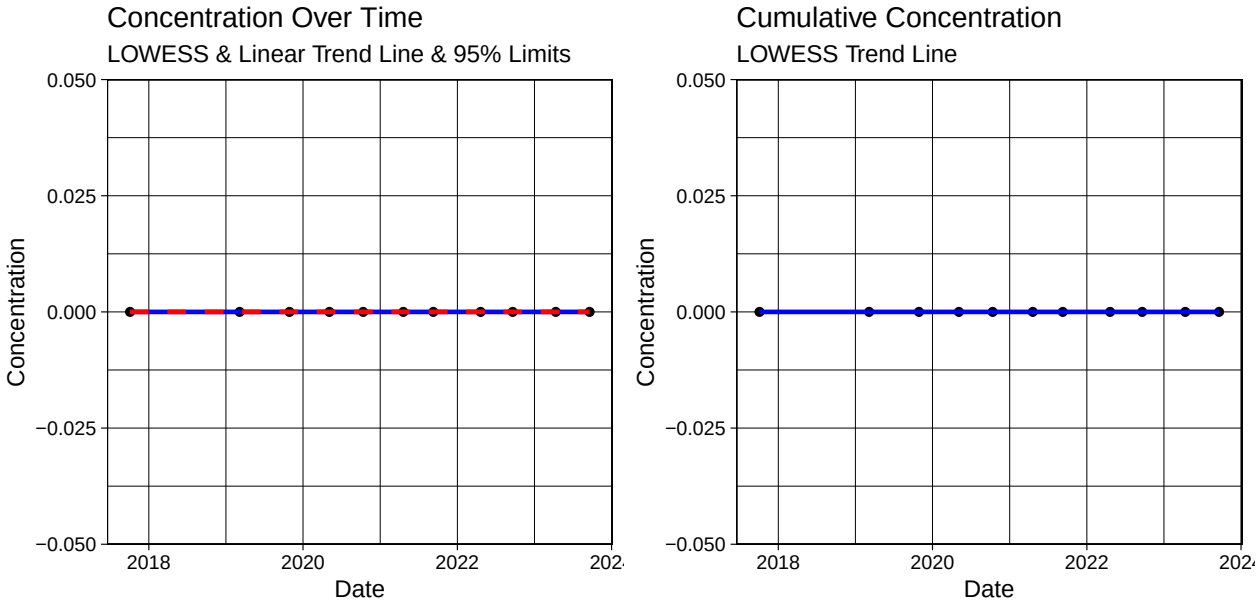
Report for ID : MW123S and Analyte : SumofPFOSandPFHxS





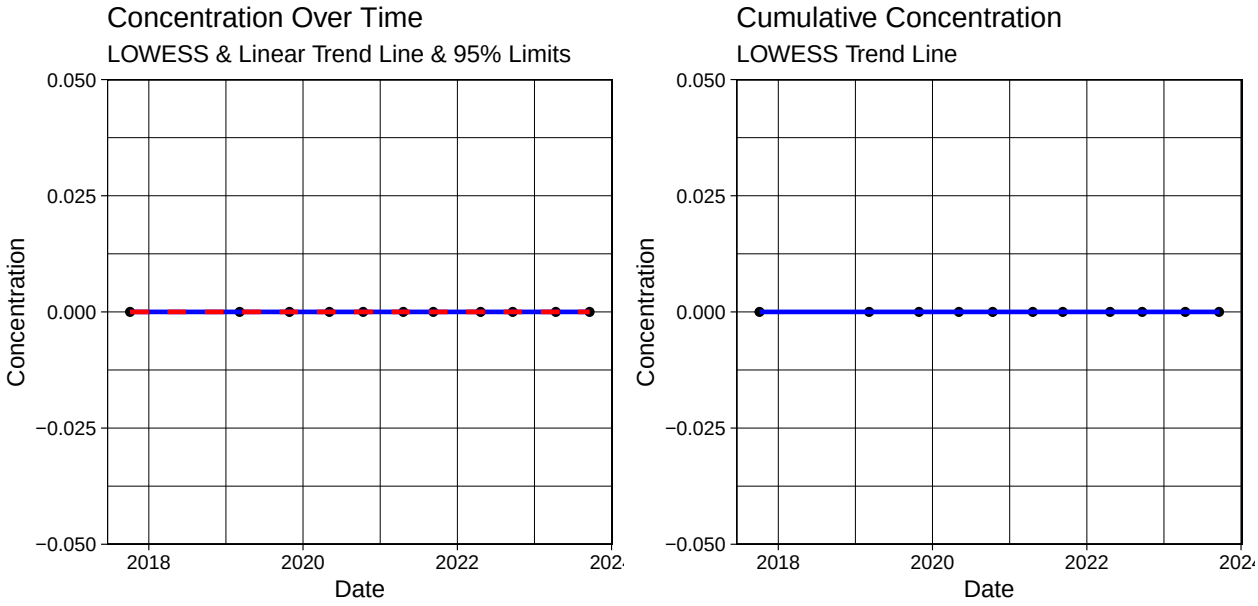
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW124D and Analyte : SumofPFOSandPFHxS



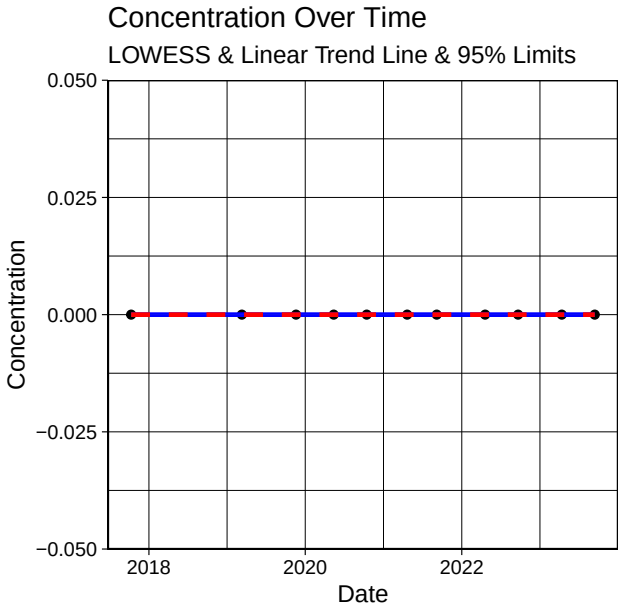
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

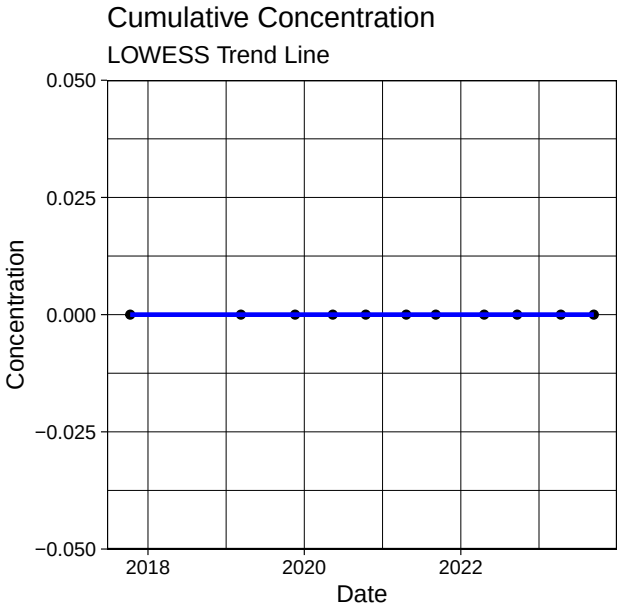
Report for ID : MW124S and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

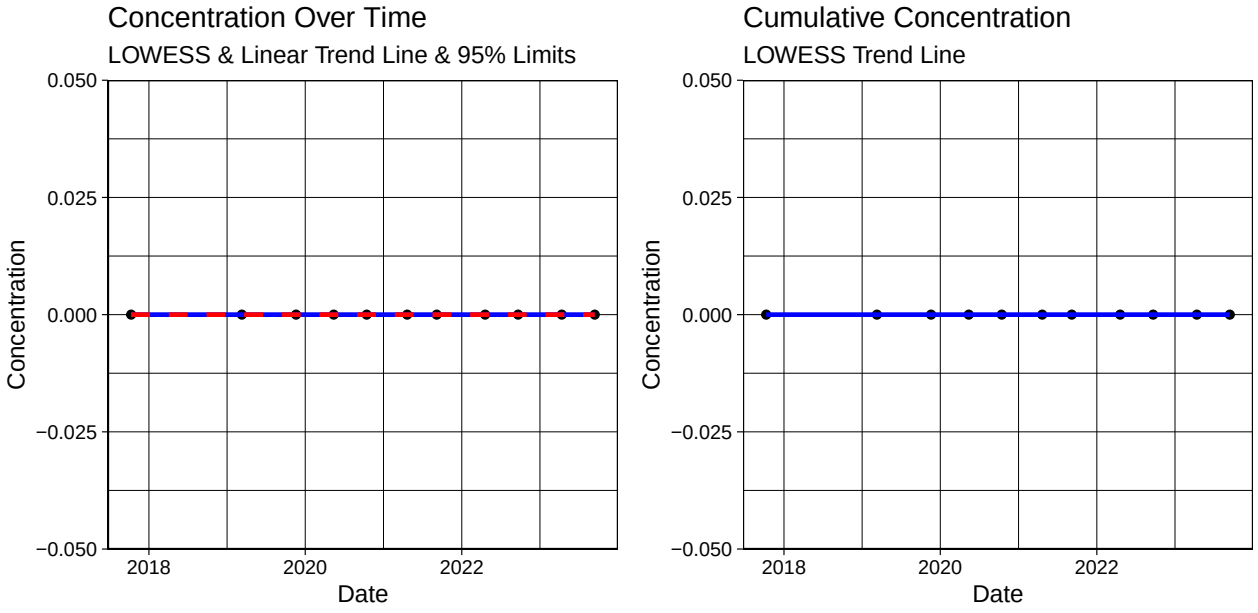
Report for ID : MW125D and Analyte : SumofPFOSandPFHxS





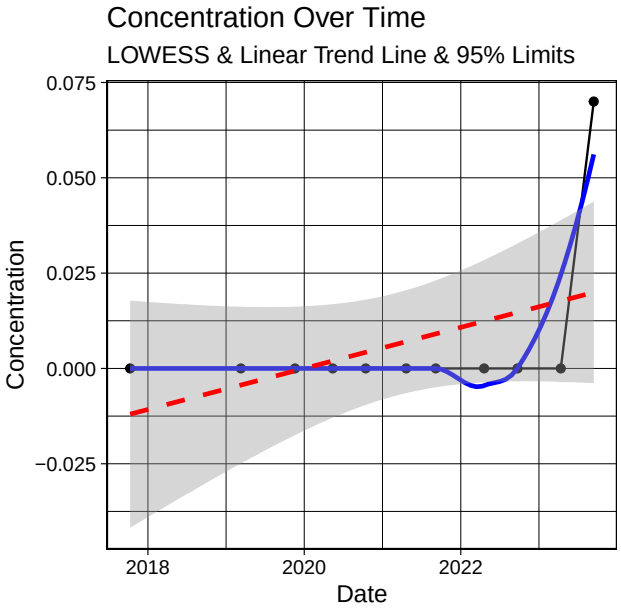
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

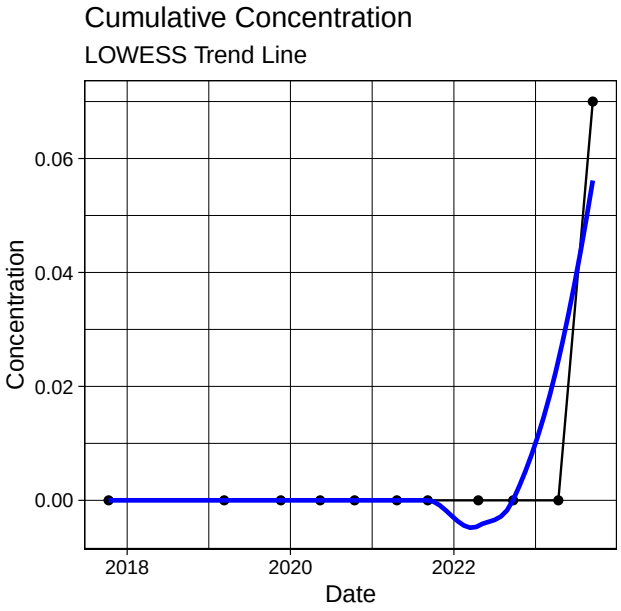
Report for ID : MW125S and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	1.42
p	0.15
S	10
varS	40
tau	0.43
mean	0.01
sd	0.02
cov	3.32
results	NO CLEAR TREND

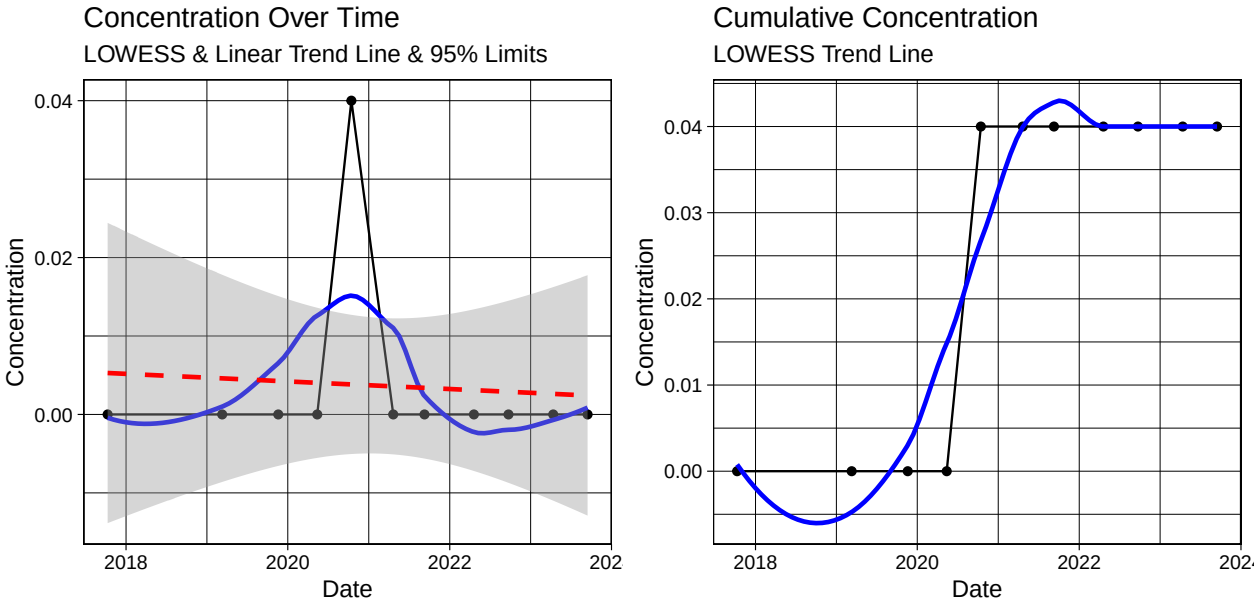
Report for ID : MW126 and Analyte : SumofPFOSandPFHxS





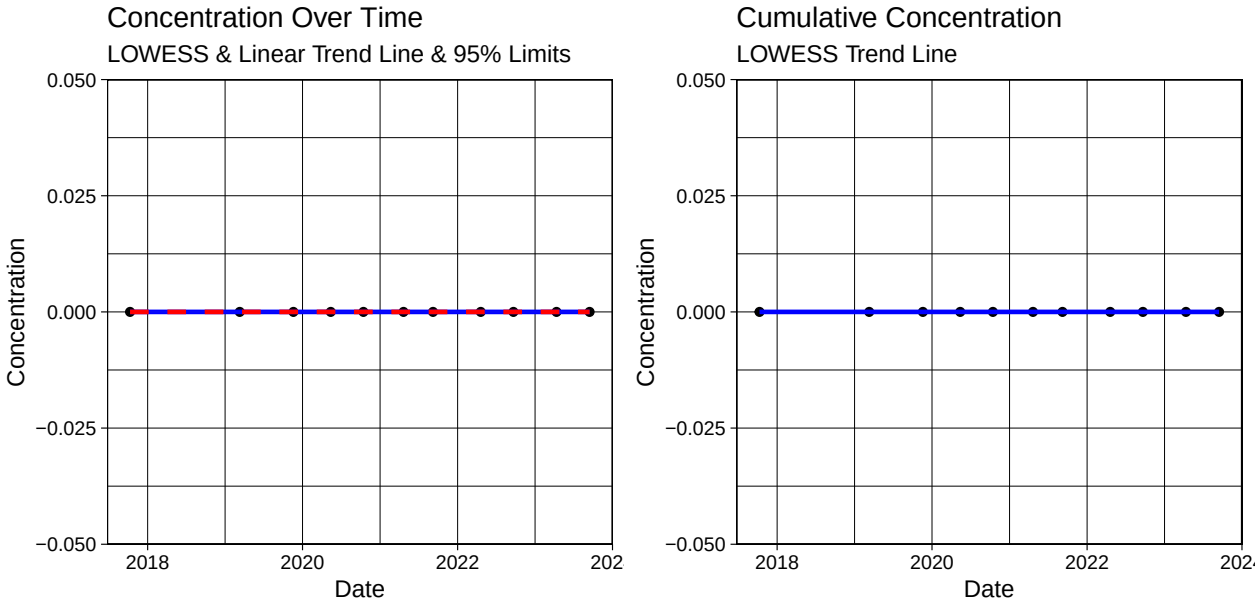
Kendall Trend Test Results Continuous	
n	11
z	-0.16
p	0.87
S	-2
varS	40
tau	-0.09
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

Report for ID : MW127 and Analyte : SumofPFOSandPFHxS



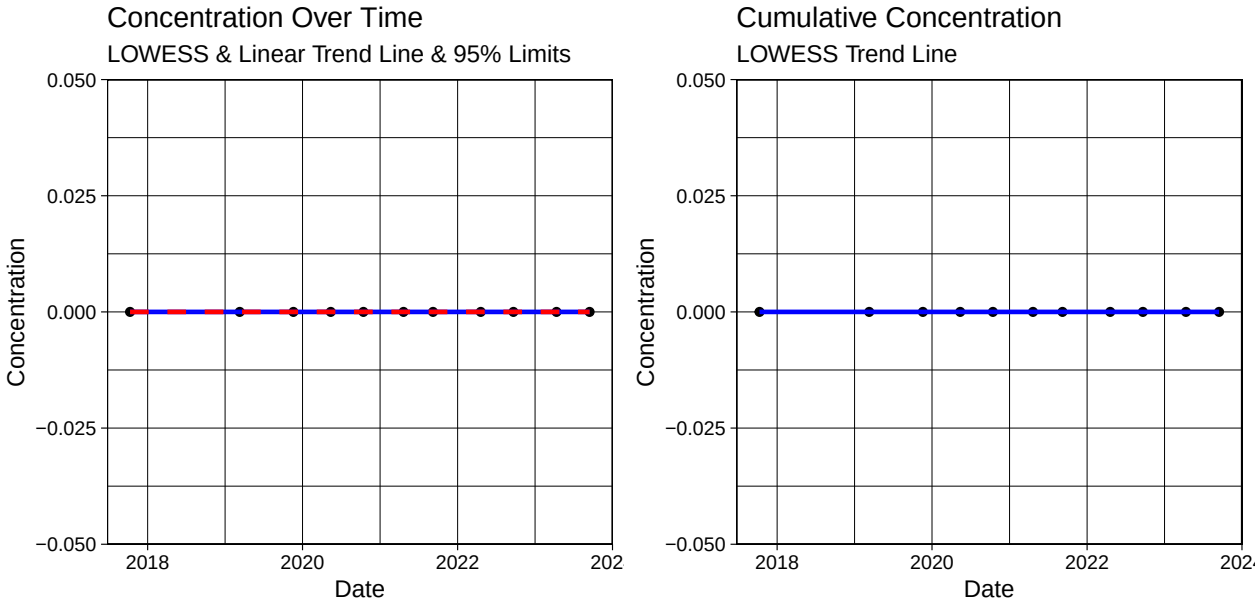
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128D and Analyte : SumofPFOSandPFHxS



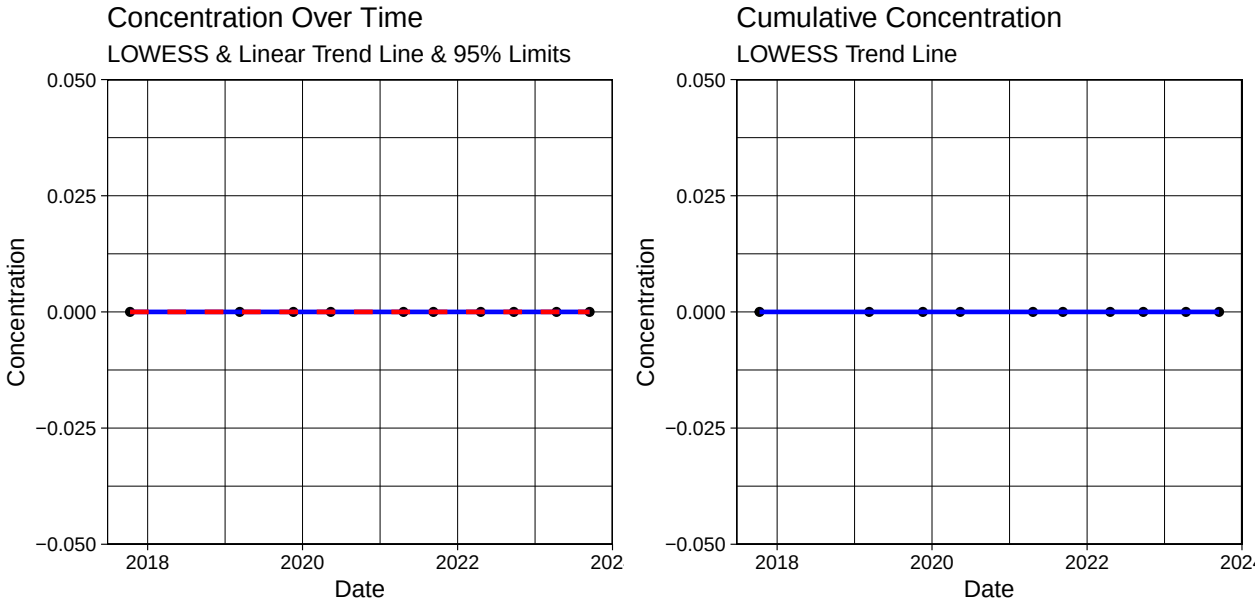
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128S and Analyte : SumofPFOSandPFHxS



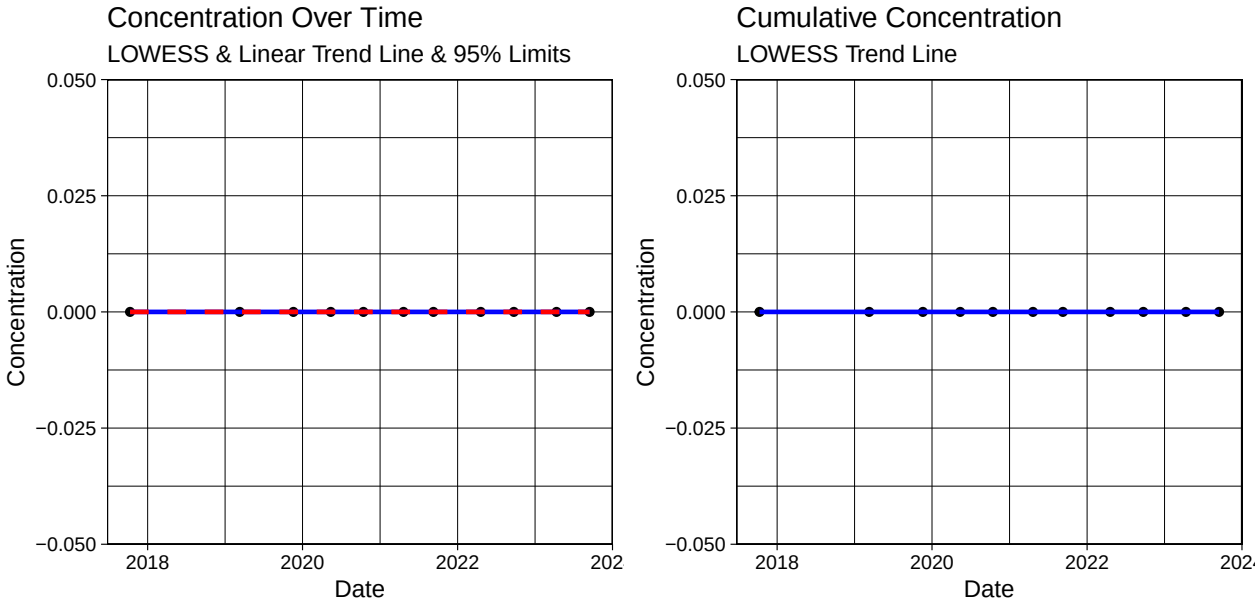
Kendall Trend Test Results Continuous	
n	10
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129D and Analyte : SumofPFOSandPFHxS



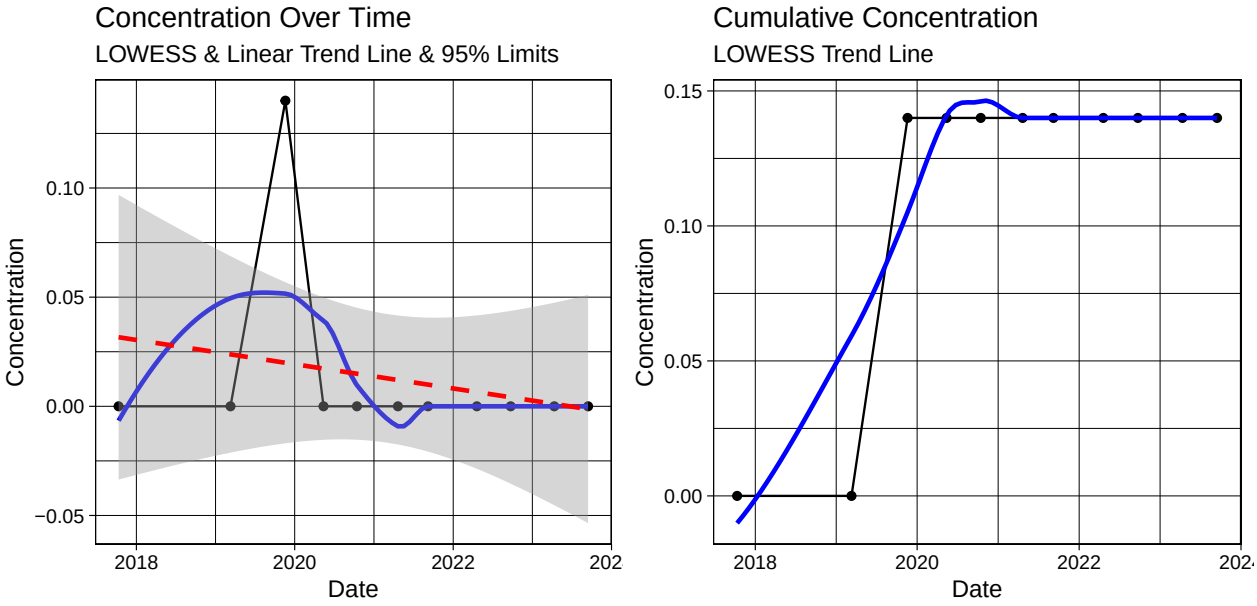
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129S and Analyte : SumofPFOSandPFHxS



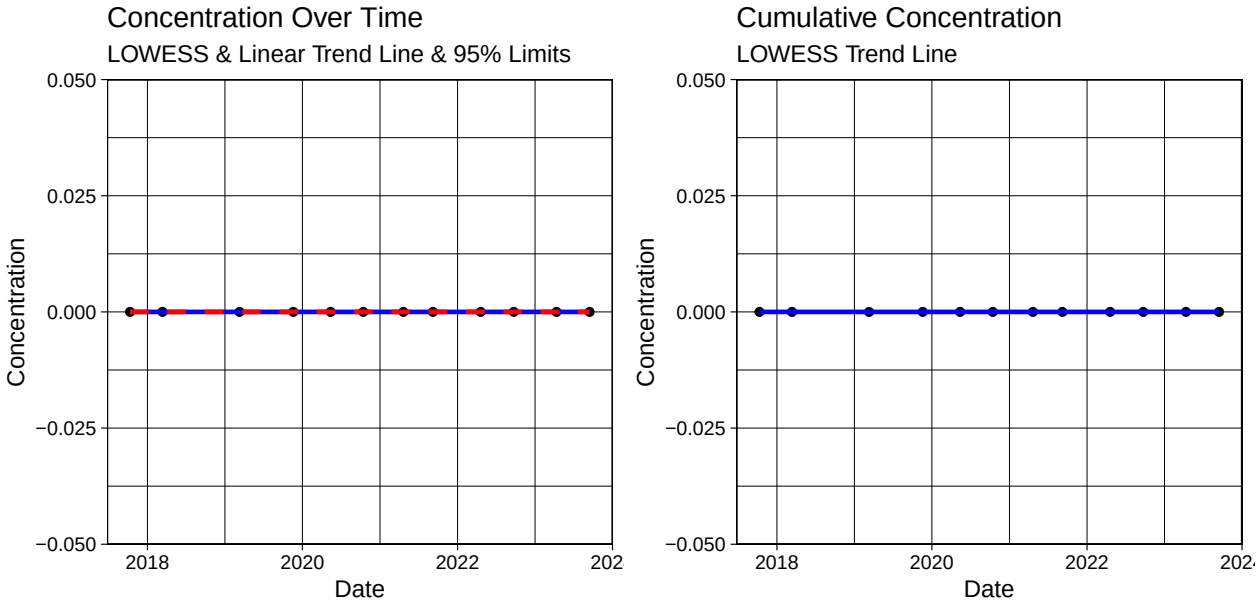
Kendall Trend Test Results Continuous	
n	11
z	-0.79
p	0.43
S	-6
varS	40
tau	-0.26
mean	0.01
sd	0.04
cov	3.32
results	NO CLEAR TREND

Report for ID : MW130D and Analyte : SumofPFOSandPFHxS



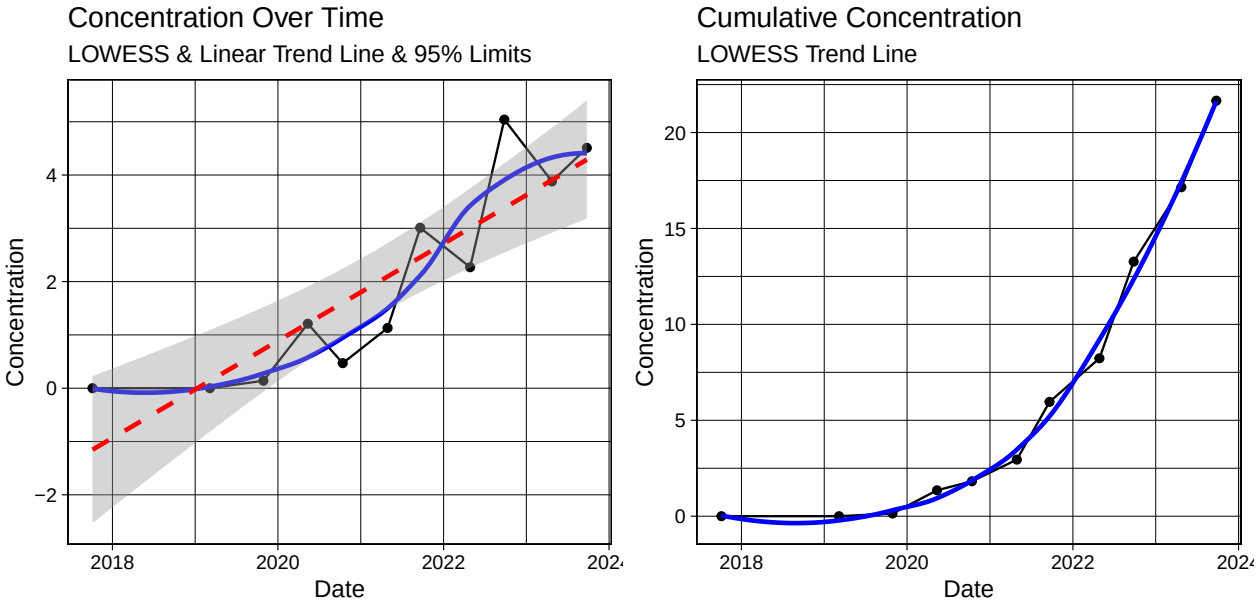
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW130S and Analyte : SumofPFOSandPFHxS



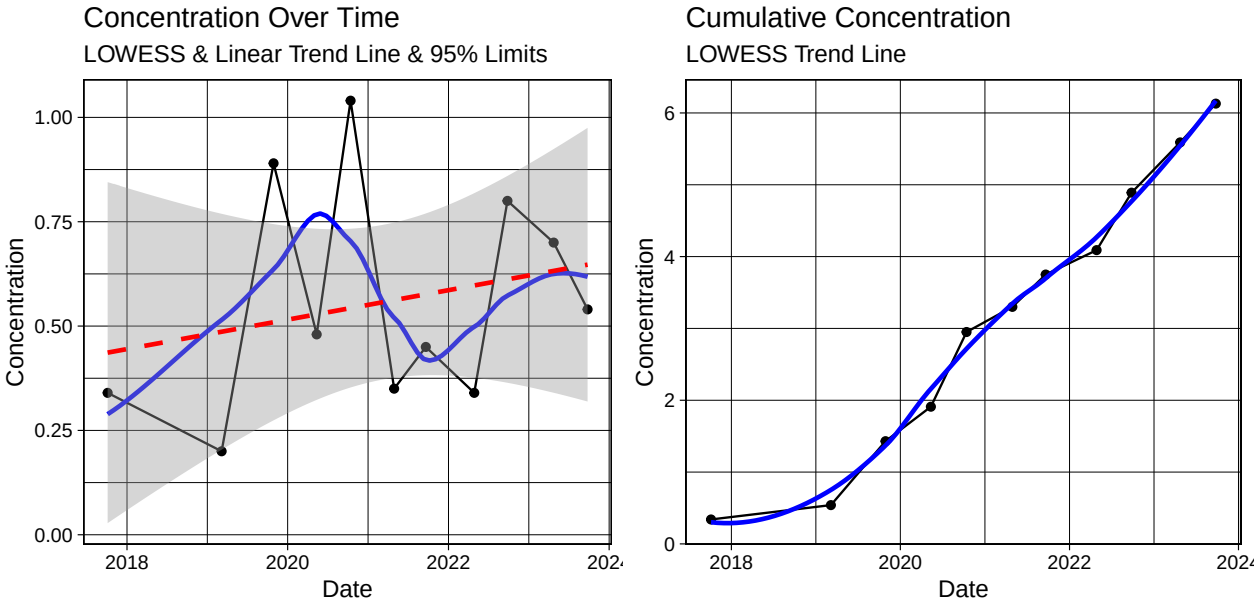
Kendall Trend Test Results Continuous	
n	11
z	3.36
p	0
S	44
varS	164
tau	0.81
mean	1.97
sd	1.88
cov	0.95
results	INCREASING

Report for ID : MW132D and Analyte : SumofPFOSandPFHxS



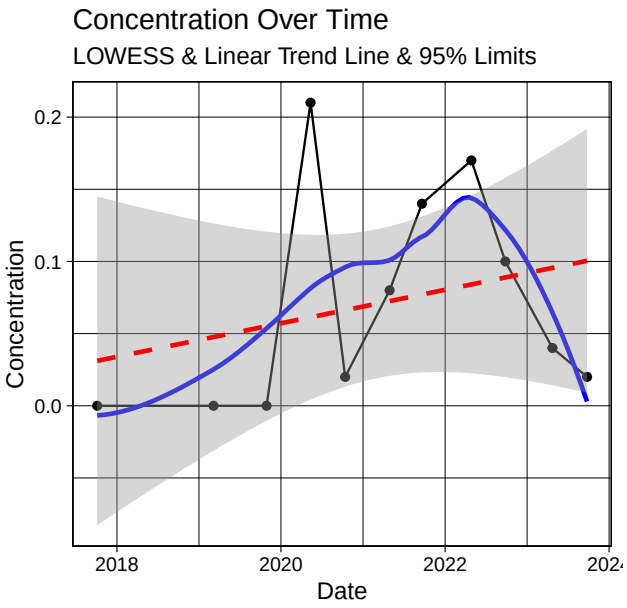
Kendall Trend Test Results Continuous	
n	11
z	0.7
p	0.48
S	10
varS	164
tau	0.18
mean	0.56
sd	0.27
cov	0.48
results	NO CLEAR TREND

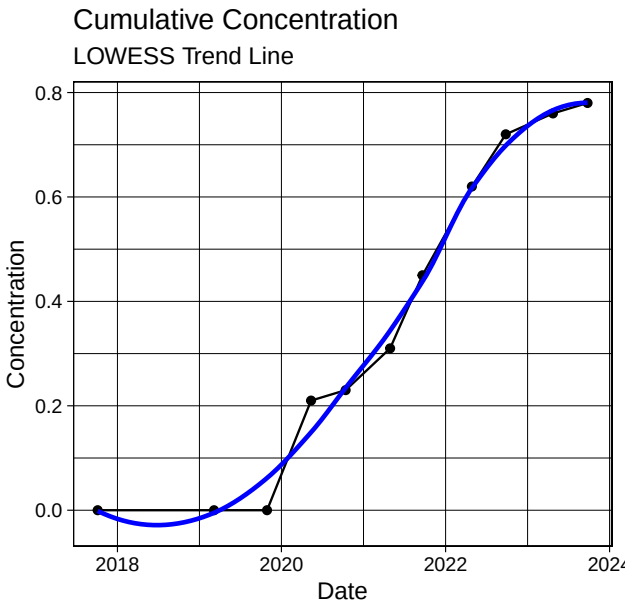
Report for ID : MW132S and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	1.11
p	0.27
S	15
varS	160.33
tau	0.28
mean	0.07
sd	0.07
cov	1.06
results	NO CLEAR TREND

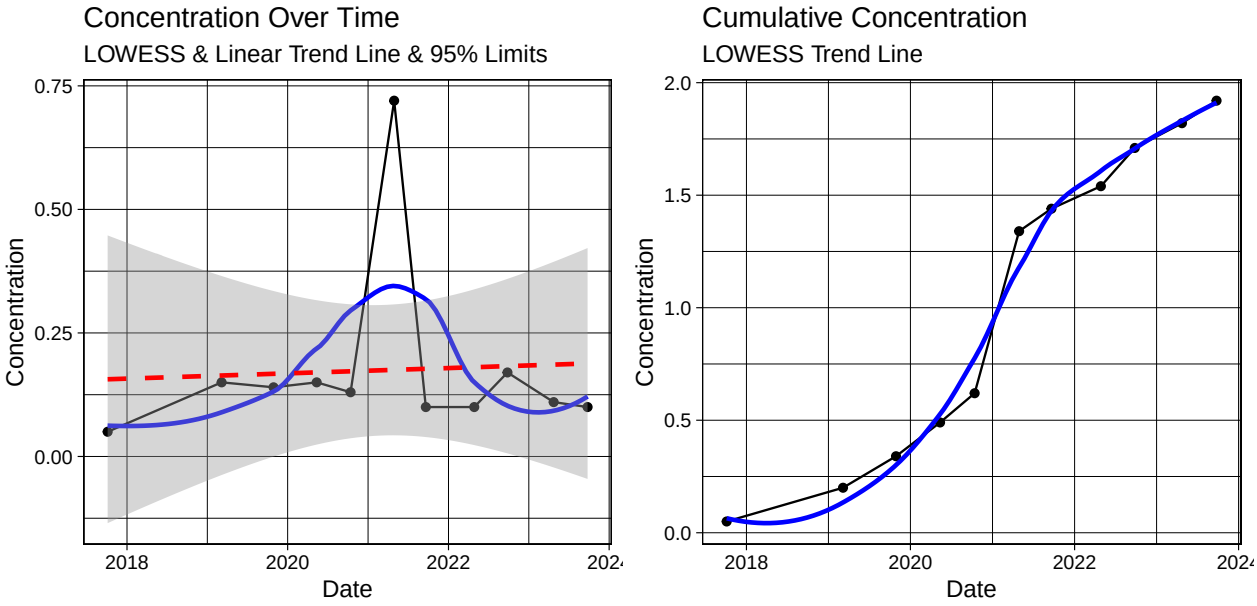
Report for ID : MW134D and Analyte : SumofPFOSandPFHxS





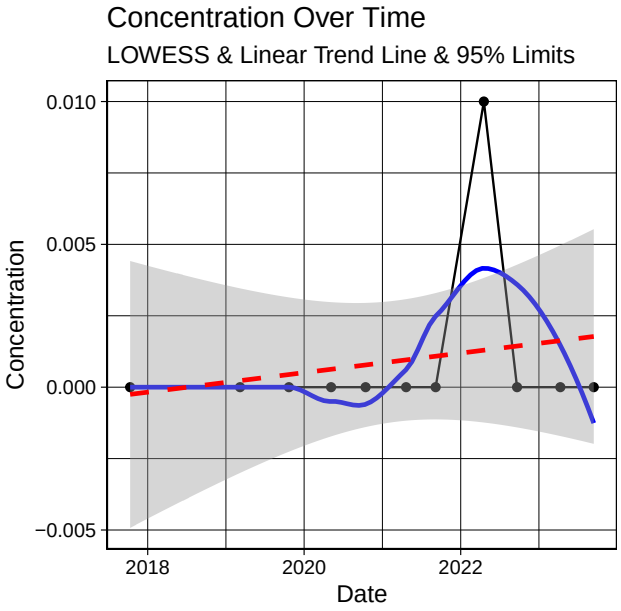
Kendall Trend Test Results Continuous	
n	11
z	-0.32
p	0.75
S	-5
varS	160.33
tau	-0.09
mean	0.17
sd	0.18
cov	1.05
results	NO CLEAR TREND

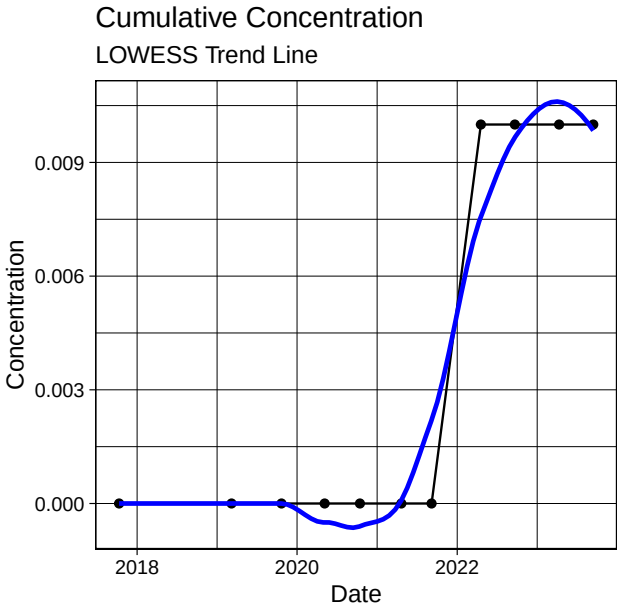
Report for ID : MW134S and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	0.47
p	0.64
S	4
varS	40
tau	0.17
mean	0
sd	0
cov	3.32
results	NO CLEAR TREND

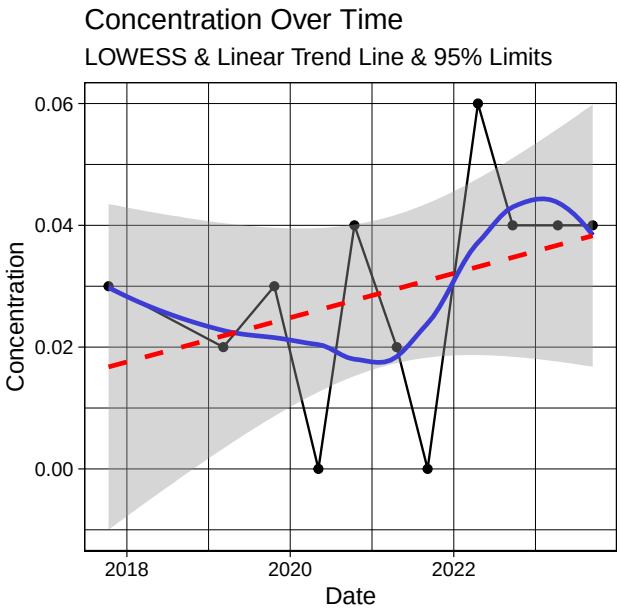
Report for ID : MW136 and Analyte : SumofPFOSandPFHxS

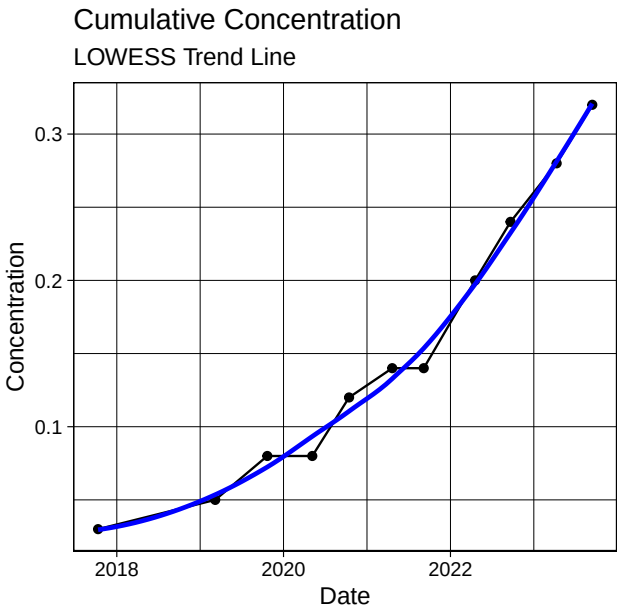




Kendall Trend Test Results Continuous	
n	11
z	1.21
p	0.23
S	16
varS	153.33
tau	0.32
mean	0.03
sd	0.02
cov	0.62
results	NO CLEAR TREND

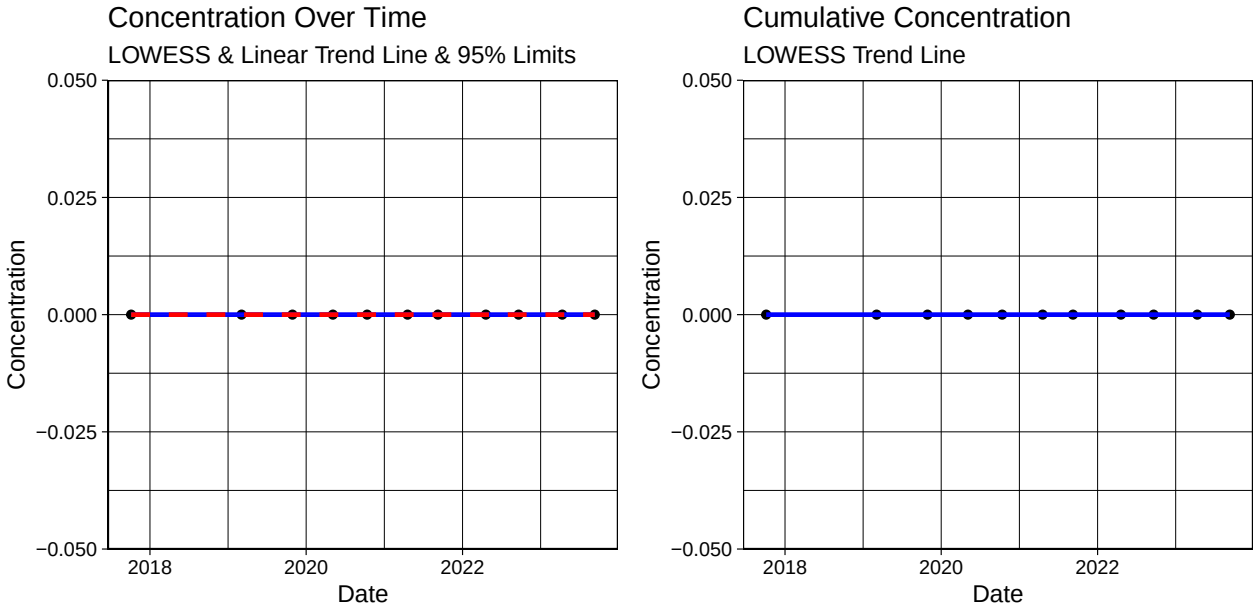
Report for ID : MW137 and Analyte : SumofPFOSandPFHxS





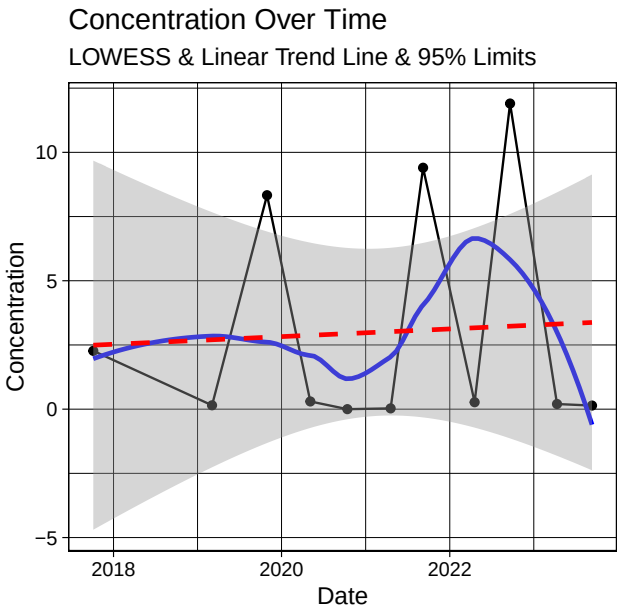
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

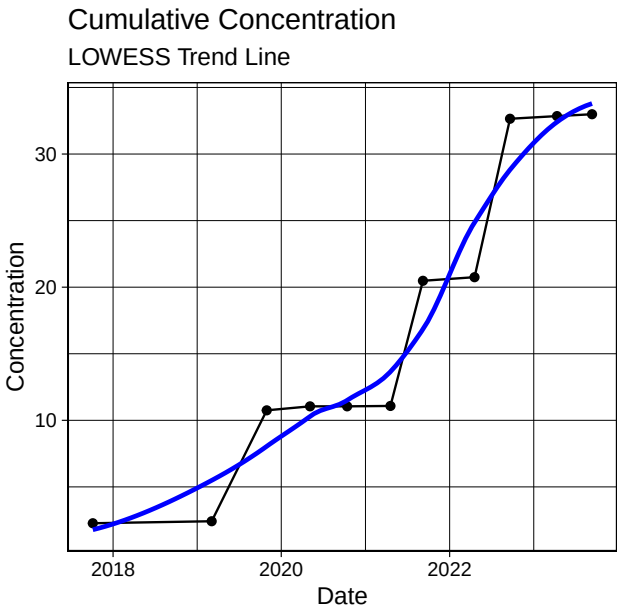
Report for ID : MW138 and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	-0.16
p	0.88
S	-3
varS	165
tau	-0.05
mean	3
sd	4.54
cov	1.51
results	NO CLEAR TREND

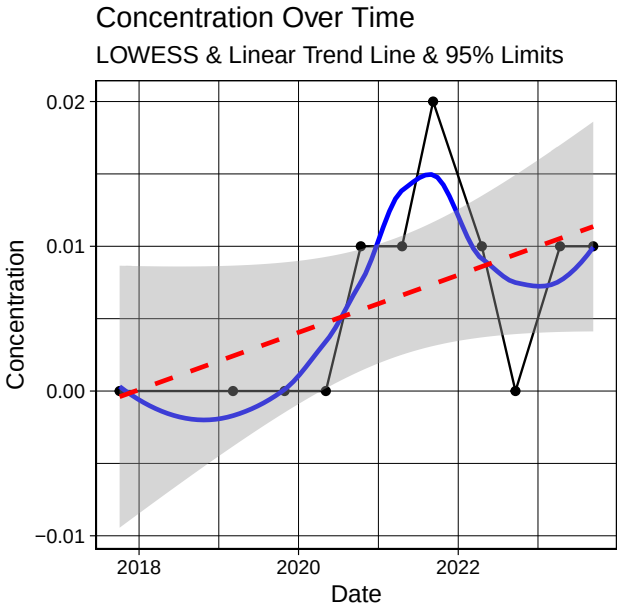
Report for ID : MW139 and Analyte : SumofPFOSandPFHxS

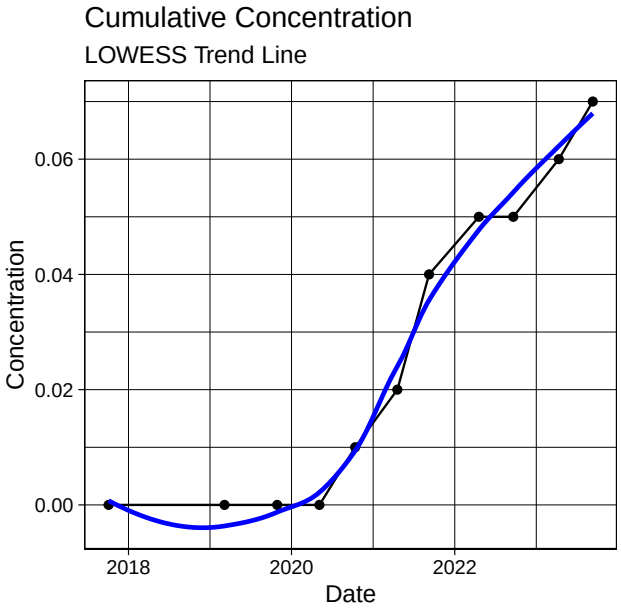




Kendall Trend Test Results Continuous	
n	11
z	1.74
p	0.08
S	21
varS	131.67
tau	0.48
mean	0.01
sd	0.01
cov	1.06
results	POSSIBLY INCREASING

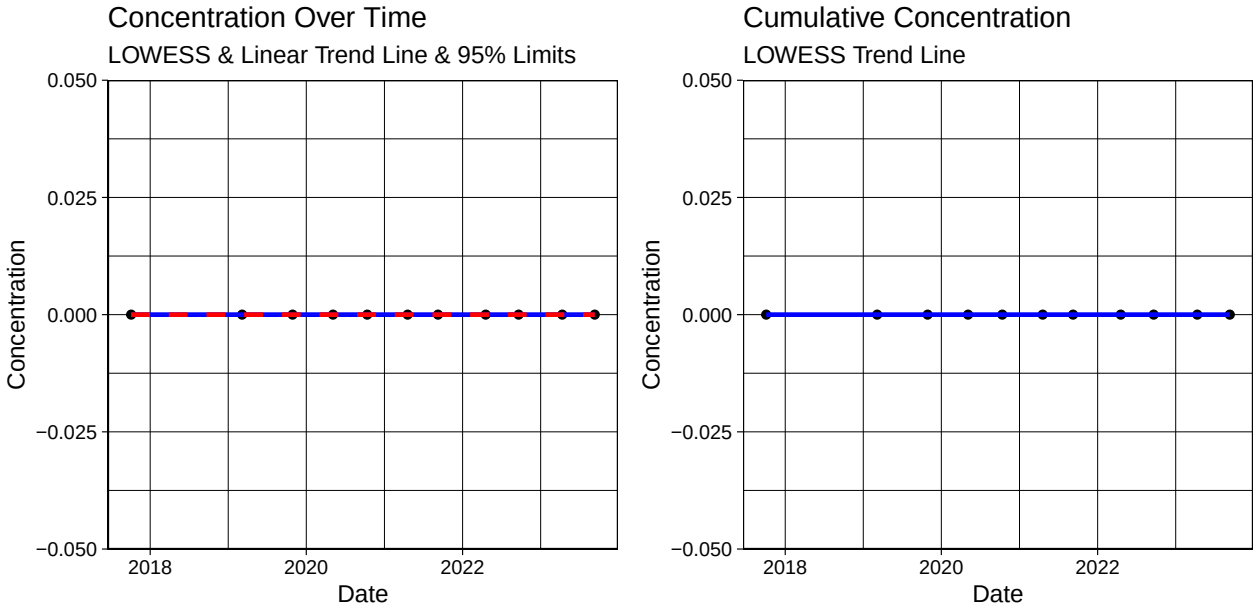
Report for ID : MW140D and Analyte : SumofPFOSandPFHxS





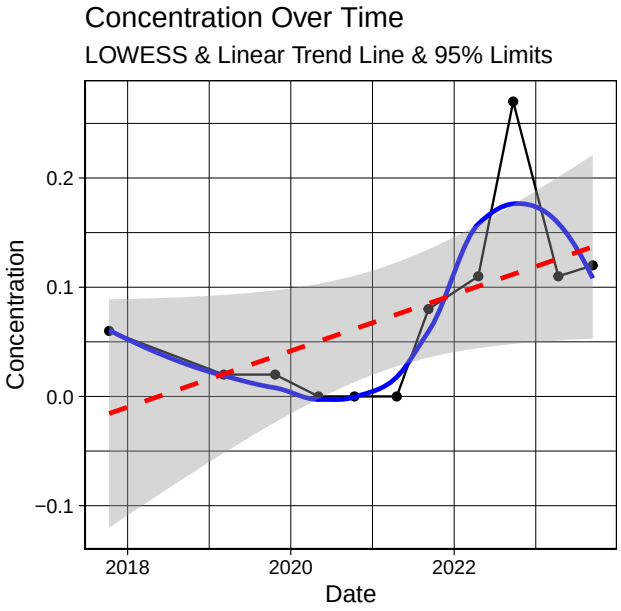
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

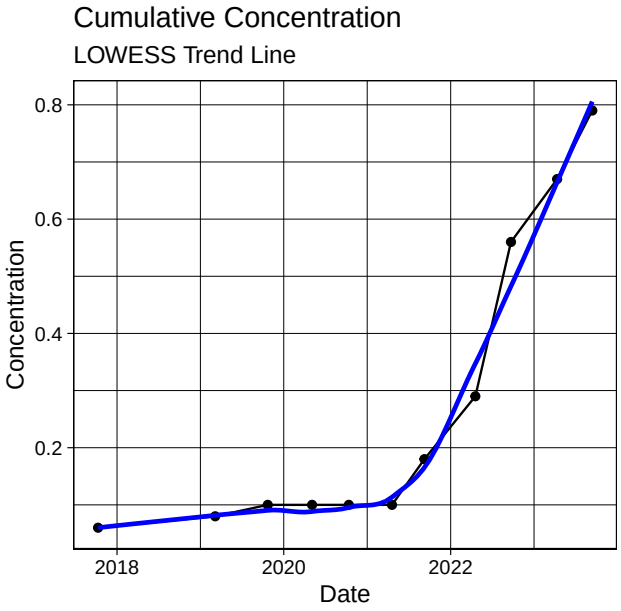
Report for ID : MW140S and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	11
z	1.82
p	0.07
S	24
varS	159.33
tau	0.46
mean	0.07
sd	0.08
cov	1.13
results	POSSIBLY INCREASING

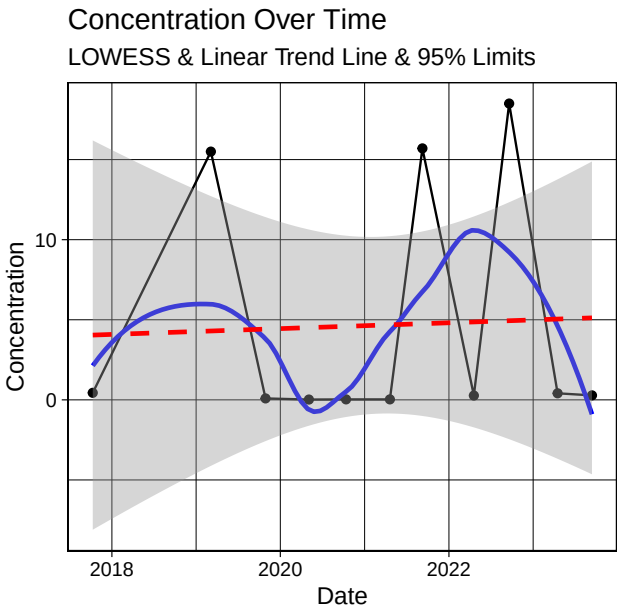
Report for ID : MW146 and Analyte : SumofPFOSandPFHxS

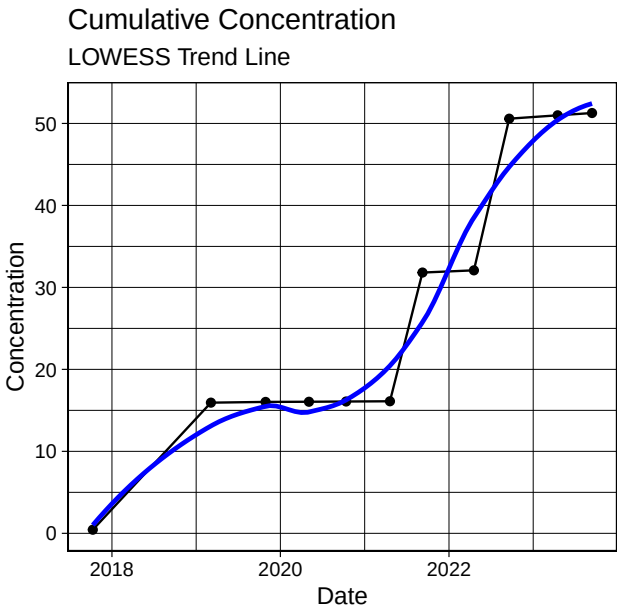




Kendall Trend Test Results Continuous	
n	11
z	0.55
p	0.58
S	8
varS	164
tau	0.15
mean	4.66
sd	7.68
cov	1.65
results	NO CLEAR TREND

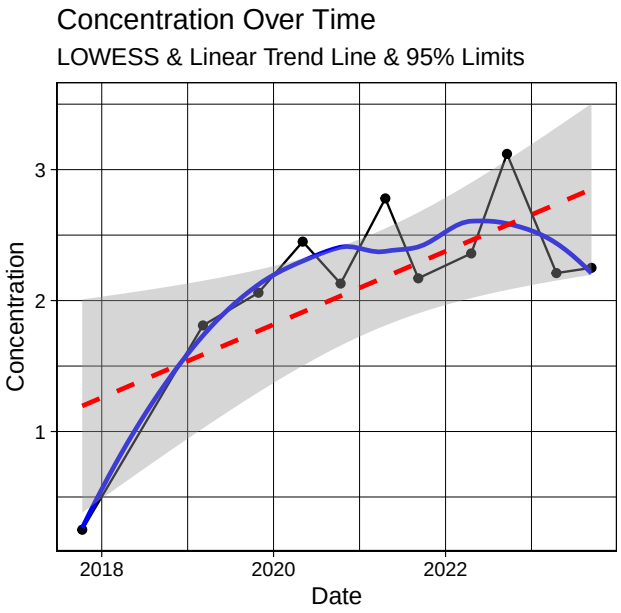
Report for ID : MW149 and Analyte : SumofPFOSandPFHxS

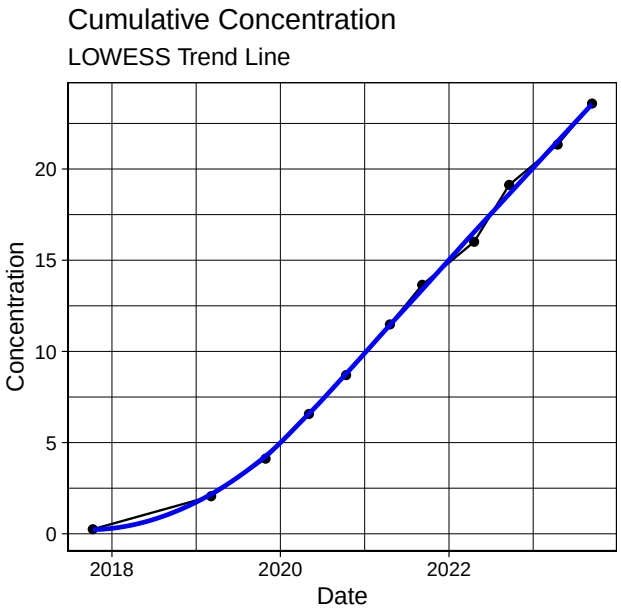




Kendall Trend Test Results Continuous	
n	11
z	2.18
p	0.03
S	29
varS	165
tau	0.53
mean	2.14
sd	0.72
cov	0.34
results	INCREASING

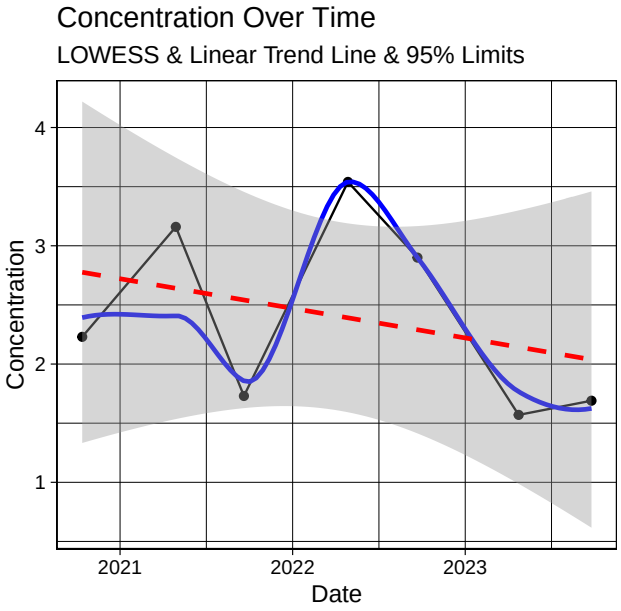
Report for ID : MW150 and Analyte : SumofPFOSandPFHxS

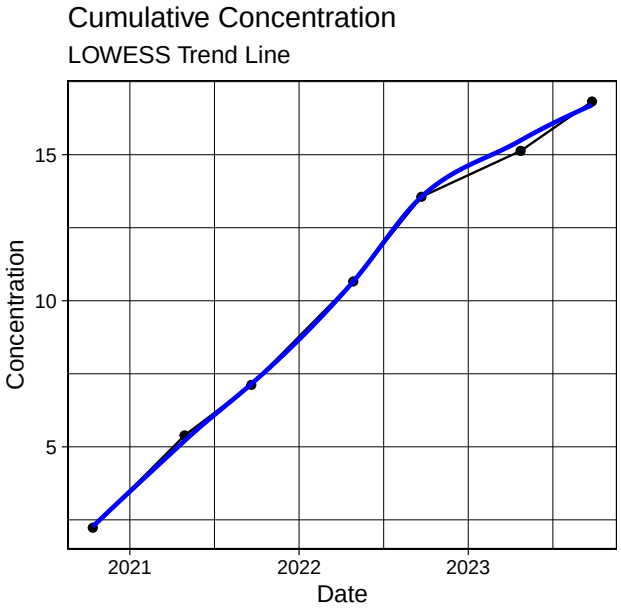




Kendall Trend Test Results Continuous	
n	7
z	-0.9
p	0.37
S	-7
varS	44.33
tau	-0.33
mean	2.4
sd	0.8
cov	0.33
results	STABLE

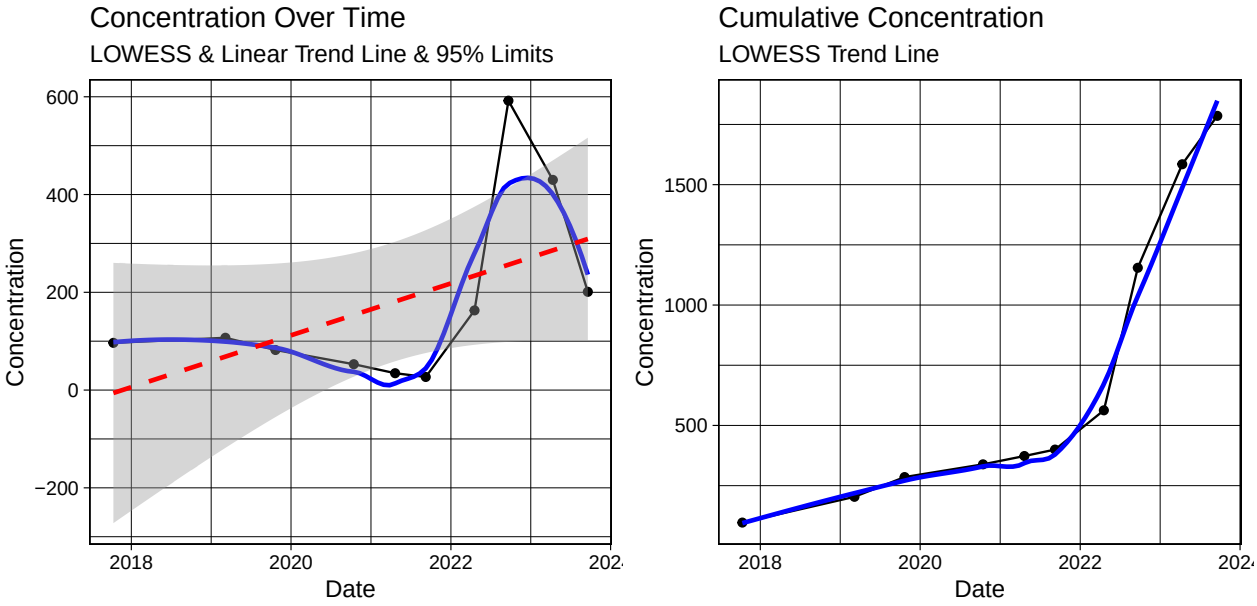
Report for ID : MW155S and Analyte : SumofPFOSandPFHxS





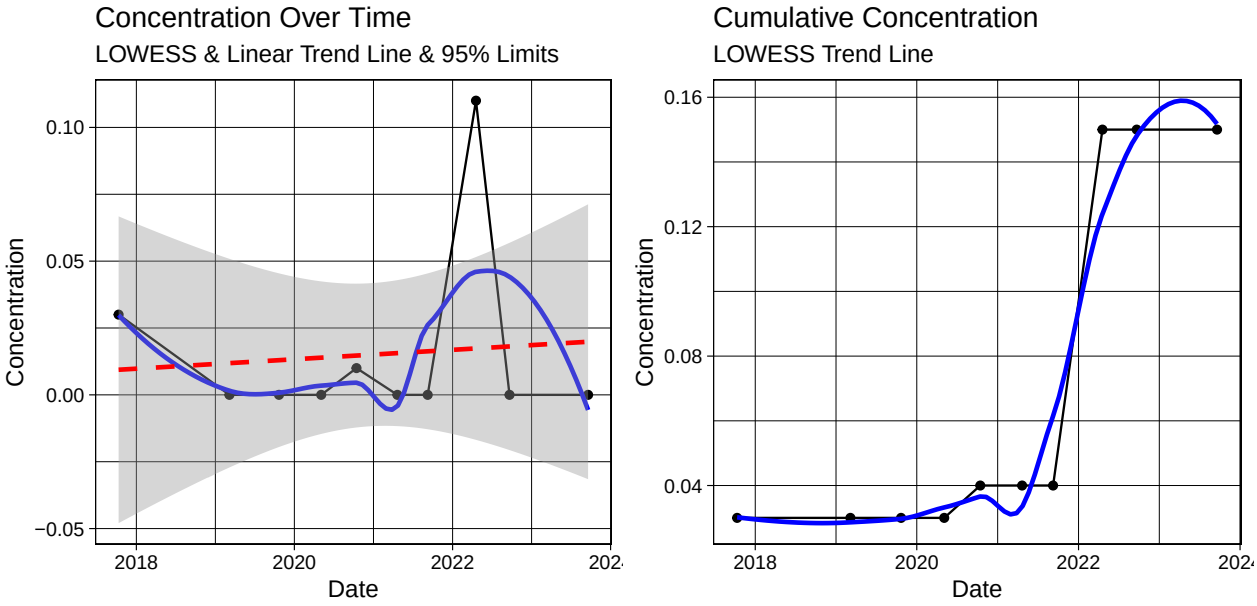
Kendall Trend Test Results Continuous	
n	10
z	0.89
p	0.37
S	11
varS	125
tau	0.24
mean	178.58
sd	187.27
cov	1.05
results	NO CLEAR TREND

Report for ID : MW202 and Analyte : SumofPFOSandPFHxS



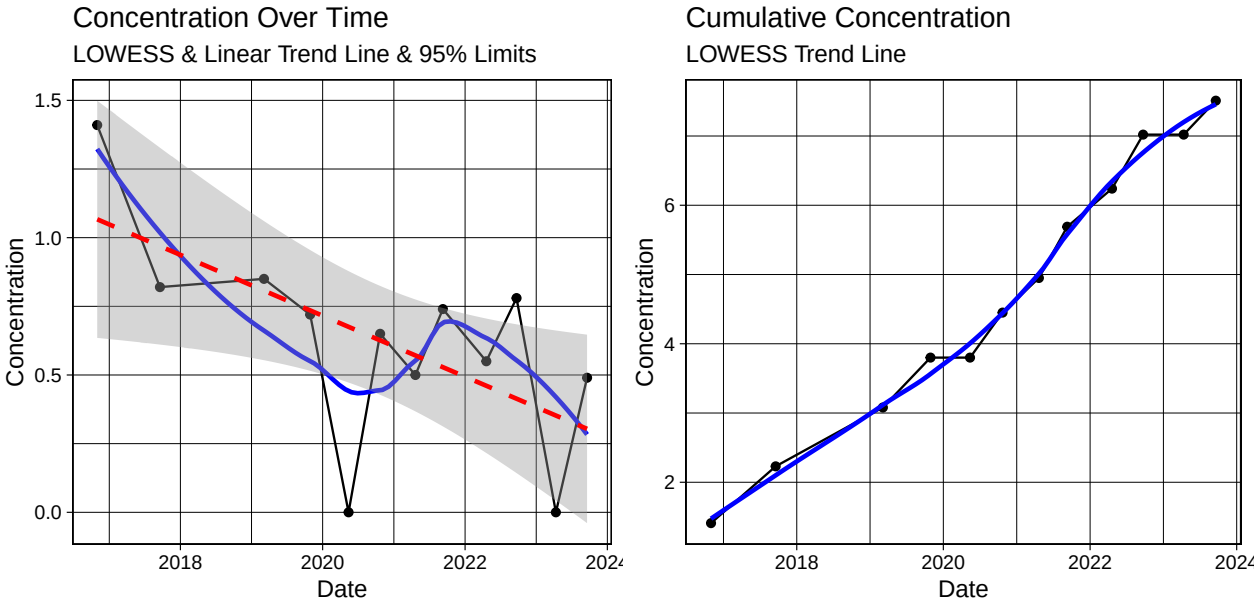
Kendall Trend Test Results Continuous	
n	10
z	-0.33
p	0.74
S	-4
varS	80.67
tau	-0.12
mean	0.01
sd	0.03
cov	2.31
results	NO CLEAR TREND

Report for ID : MW205 and Analyte : SumofPFOSandPFHxS



Kendall Trend Test Results Continuous	
n	12
z	-2.06
p	0.04
S	-31
varS	211.67
tau	-0.47
mean	0.63
sd	0.38
cov	0.6
results	DECREASING

Report for ID : MW218 and Analyte : SumofPFOSandPFHxS



Trend Report

Report Date & Time: 2024-02-08 01:25:44

Data File Name: MW_PFOAinput.csv

Report Title: Groundwater Trend Data

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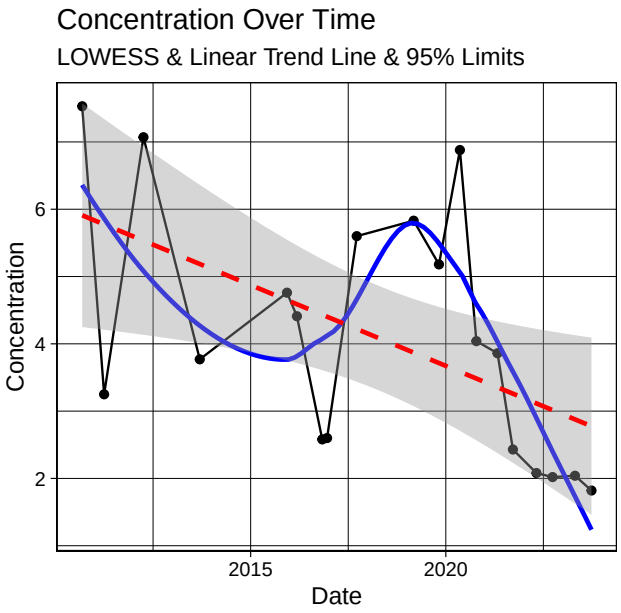
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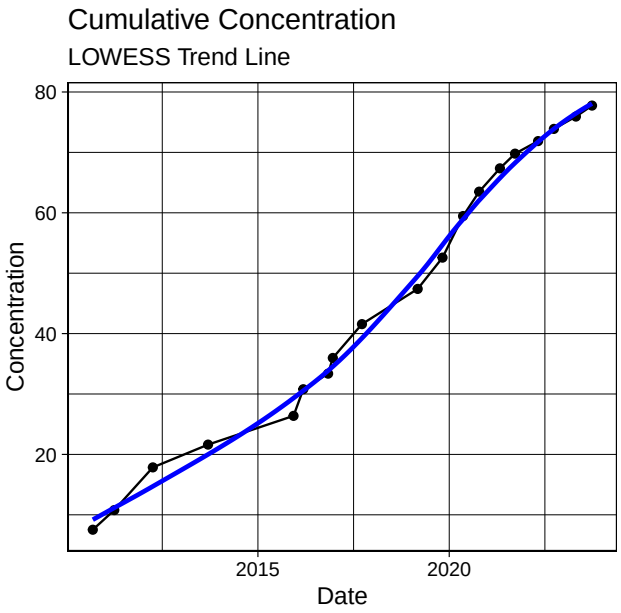
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Kendall Trend Test Results Continuous	
n	19
z	-2.87
p	0
S	-83
varS	817
tau	-0.49
mean	4.09
sd	1.85
cov	0.45
results	DECREASING

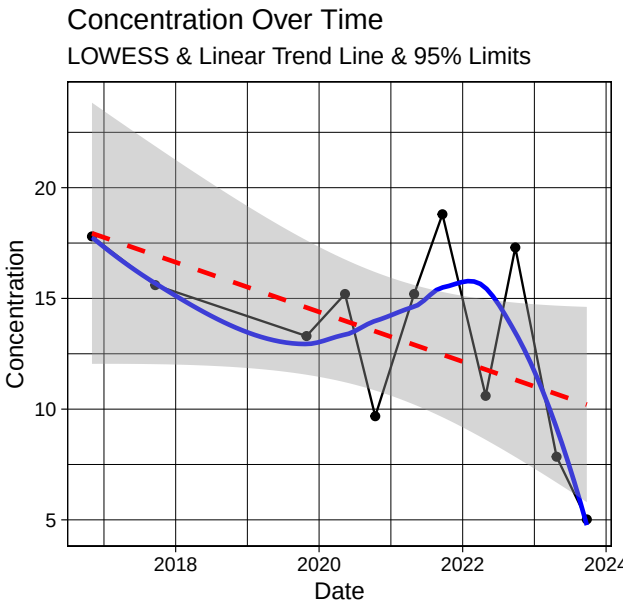
Report for ID : MW015 and Analyte : PFOA

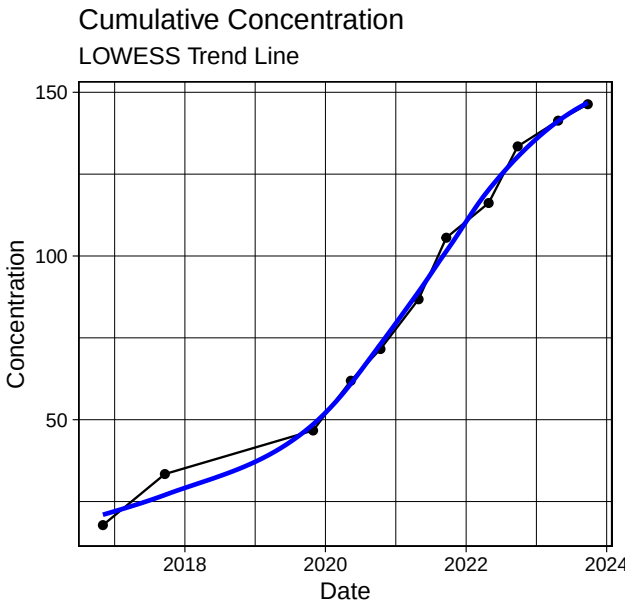




Kendall Trend Test Results Continuous	
n	11
z	-1.64
p	0.1
S	-22
varS	164
tau	-0.4
mean	13.3
sd	4.45
cov	0.33
results	STABLE

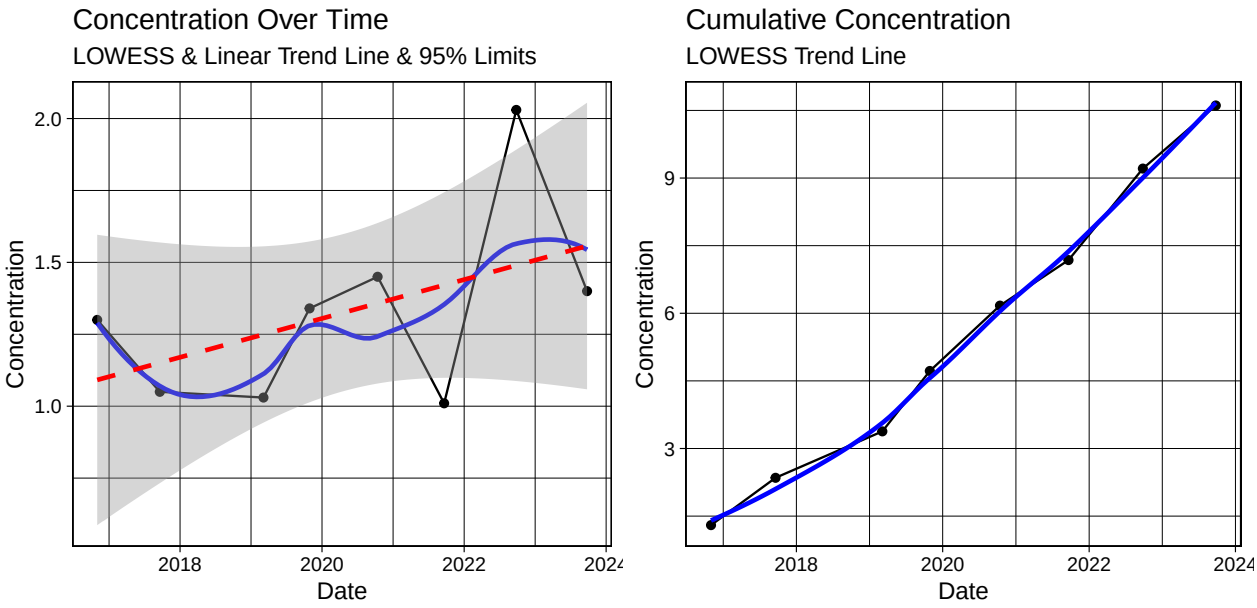
Report for ID : MW052 and Analyte : PFOA





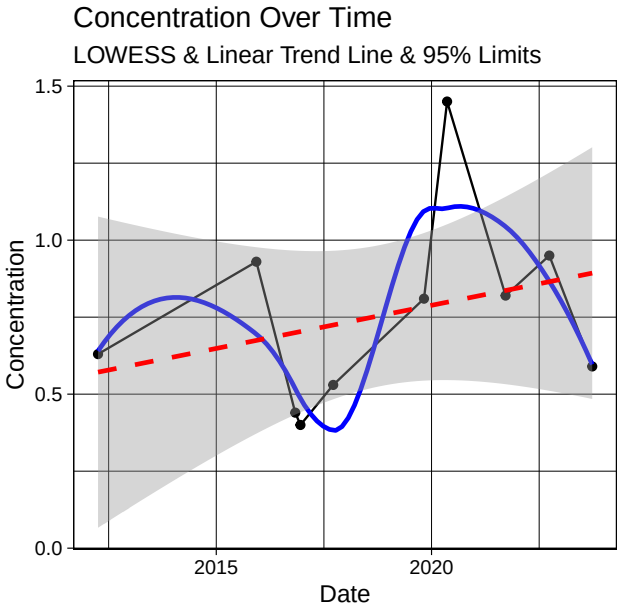
Kendall Trend Test Results Continuous	
n	8
z	0.87
p	0.39
S	8
varS	65.33
tau	0.29
mean	1.33
sd	0.33
cov	0.25
results	NO CLEAR TREND

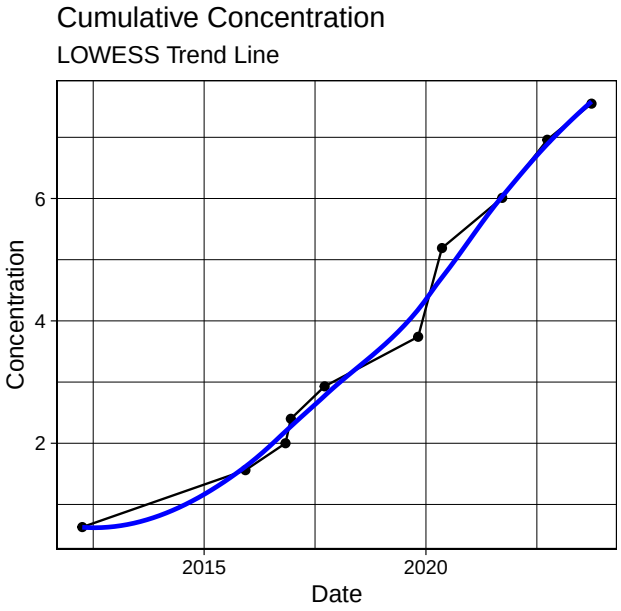
Report for ID : MW053 and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	10
z	0.89
p	0.37
S	11
varS	125
tau	0.24
mean	0.76
sd	0.31
cov	0.41
results	NO CLEAR TREND

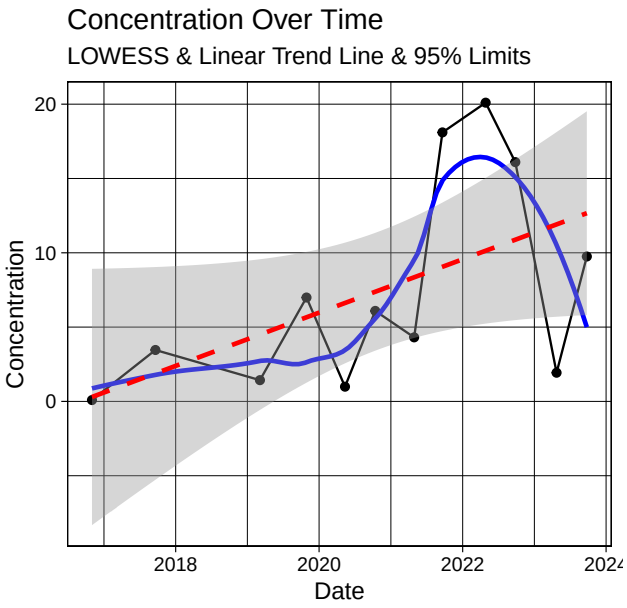
Report for ID : MW055 and Analyte : PFOA

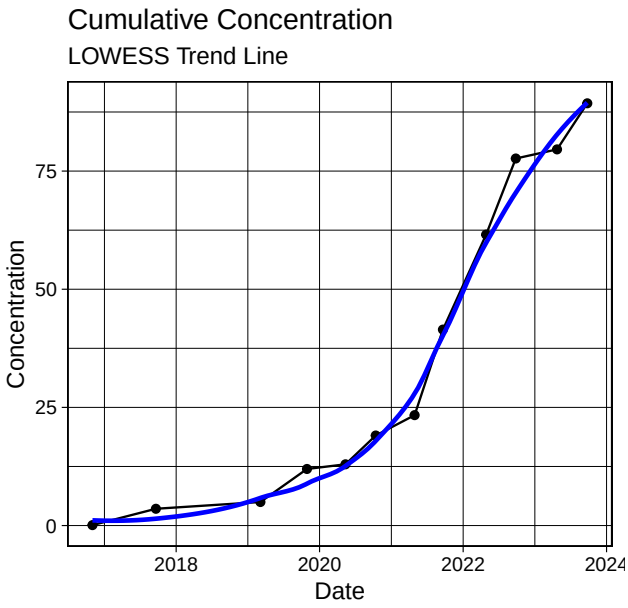




Kendall Trend Test Results Continuous	
n	12
z	1.85
p	0.06
S	28
varS	212.67
tau	0.42
mean	7.44
sd	7.03
cov	0.94
results	POSSIBLY INCREASING

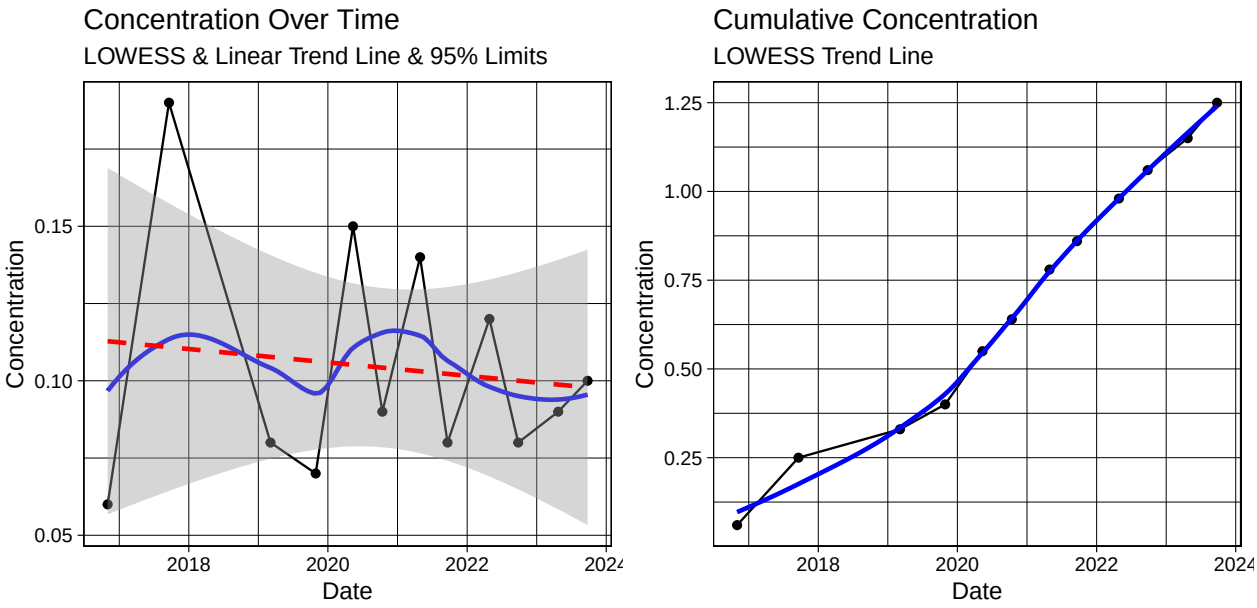
Report for ID : MW101 and Analyte : PFOA





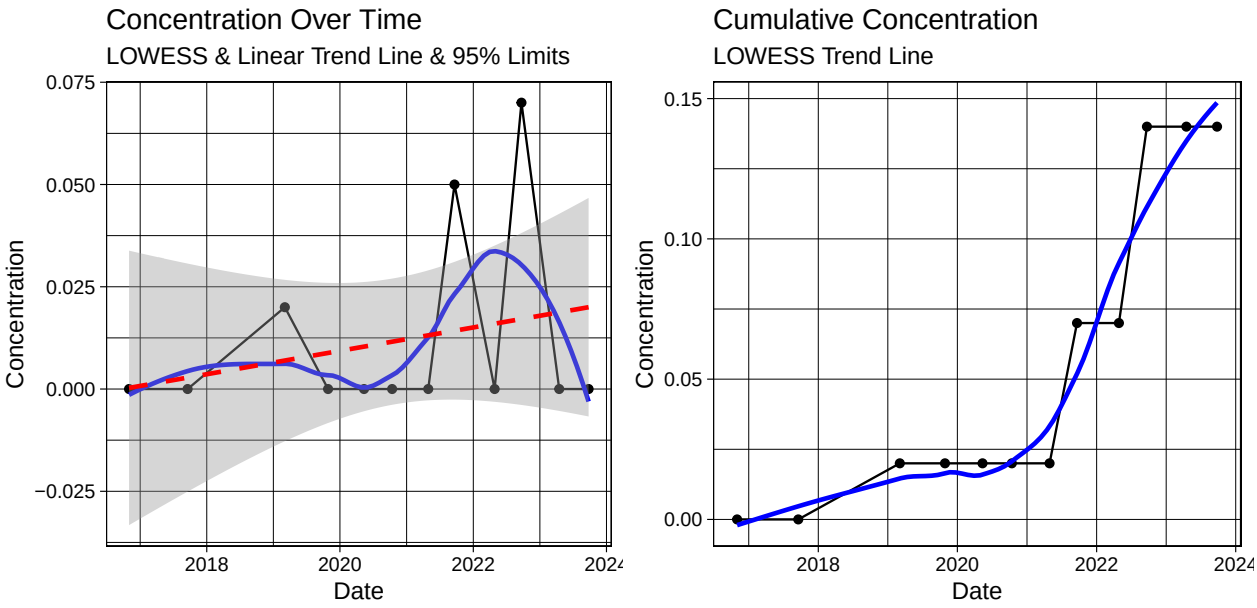
Kendall Trend Test Results Continuous	
n	12
z	0.35
p	0.73
S	6
varS	208
tau	0.09
mean	0.1
sd	0.04
cov	0.37
results	NO CLEAR TREND

Report for ID : MW102 and Analyte : PFOA



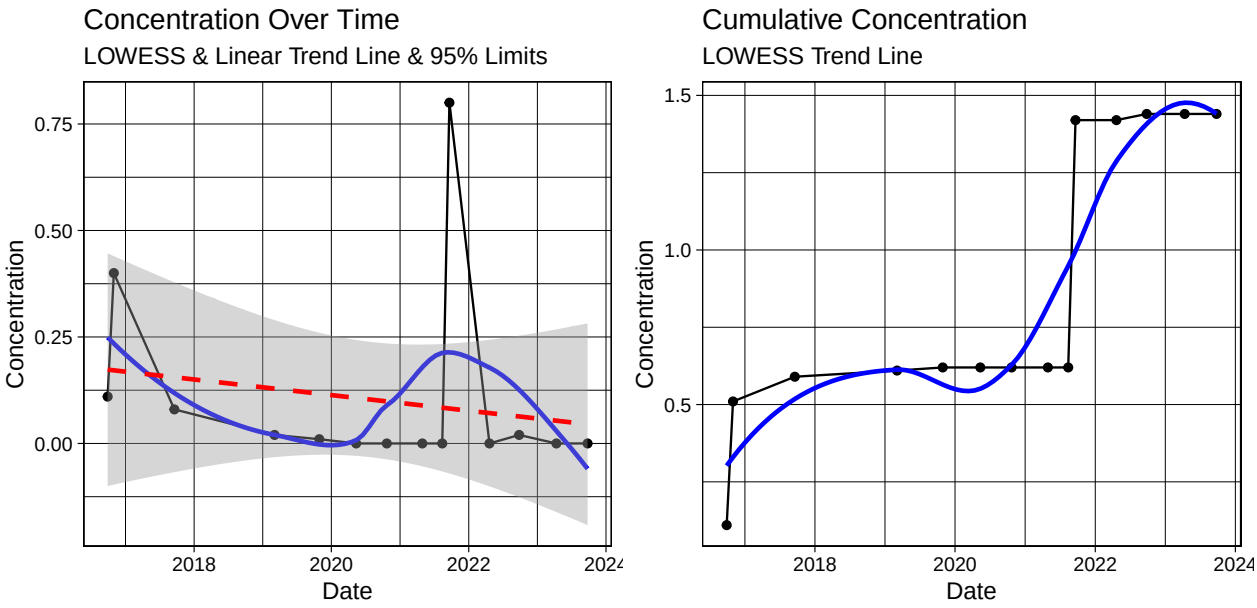
Kendall Trend Test Results Continuous	
n	12
z	0.46
p	0.65
S	6
varS	120.67
tau	0.13
mean	0.01
sd	0.02
cov	2.03
results	NO CLEAR TREND

Report for ID : MW103 and Analyte : PFOA



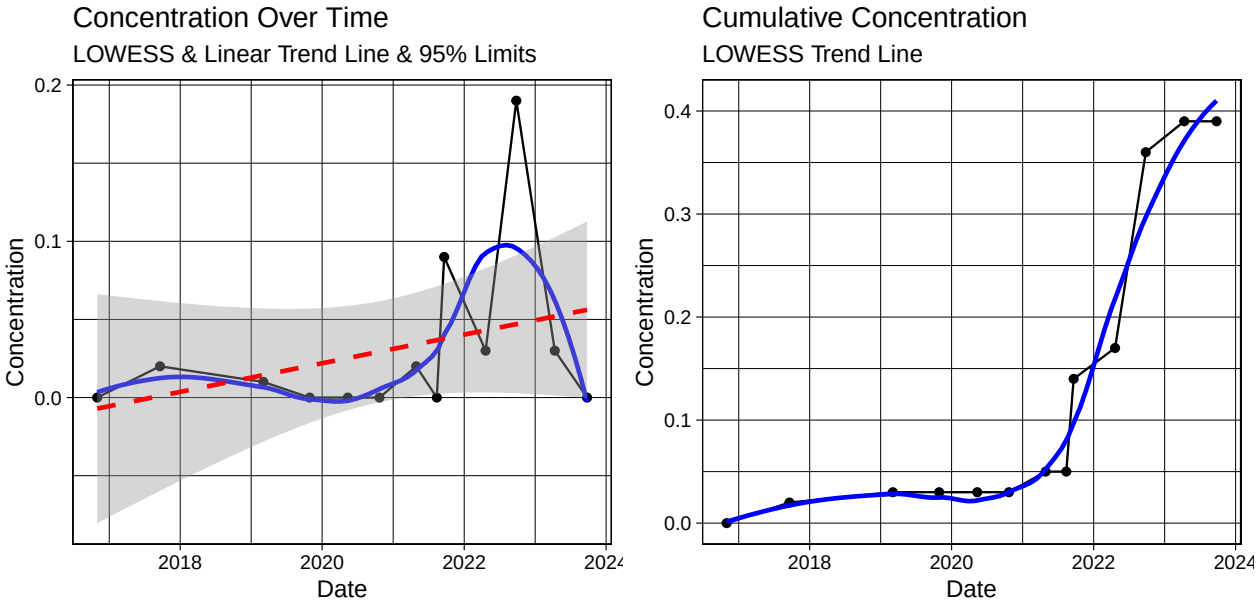
Kendall Trend Test Results Continuous	
n	14
z	-2.12
p	0.03
S	-37
varS	288.33
tau	-0.47
mean	0.1
sd	0.23
cov	2.21
results	DECREASING

Report for ID : MW104 and Analyte : PFOA



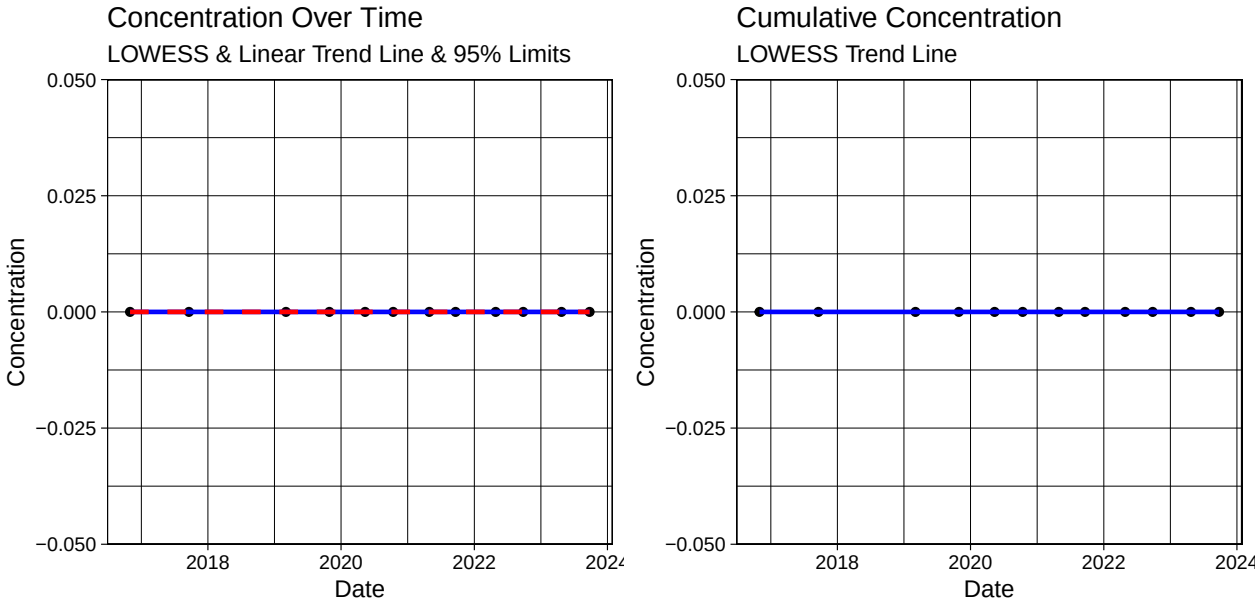
Kendall Trend Test Results Continuous	
n	13
z	1.3
p	0.2
S	21
varS	238.33
tau	0.3
mean	0.03
sd	0.05
cov	1.81
results	NO CLEAR TREND

Report for ID : MW105 and Analyte : PFOA



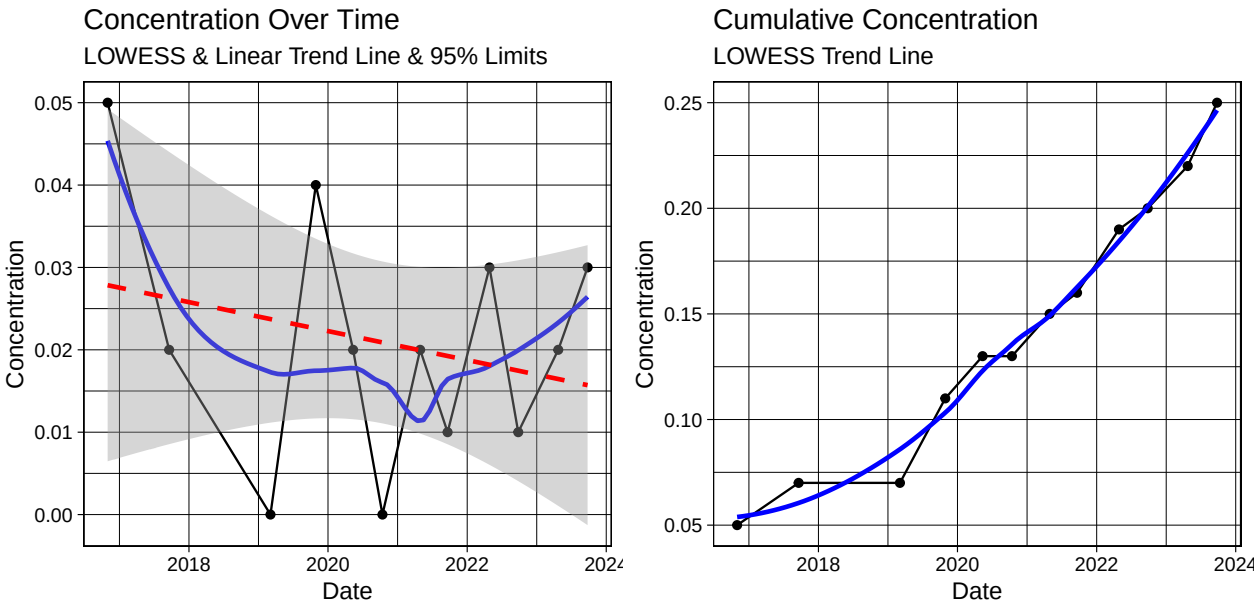
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW107 and Analyte : PFOA



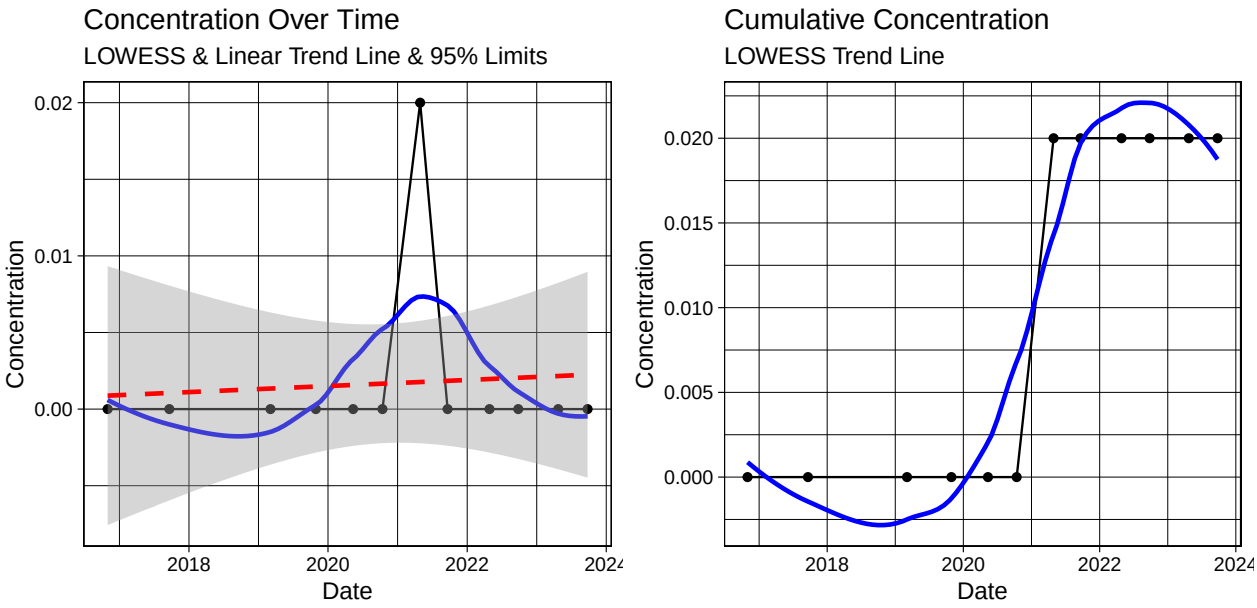
Kendall Trend Test Results Continuous	
n	12
z	-0.14
p	0.89
S	-3
varS	201
tau	-0.05
mean	0.02
sd	0.02
cov	0.72
results	STABLE

Report for ID : MW109 and Analyte : PFOA



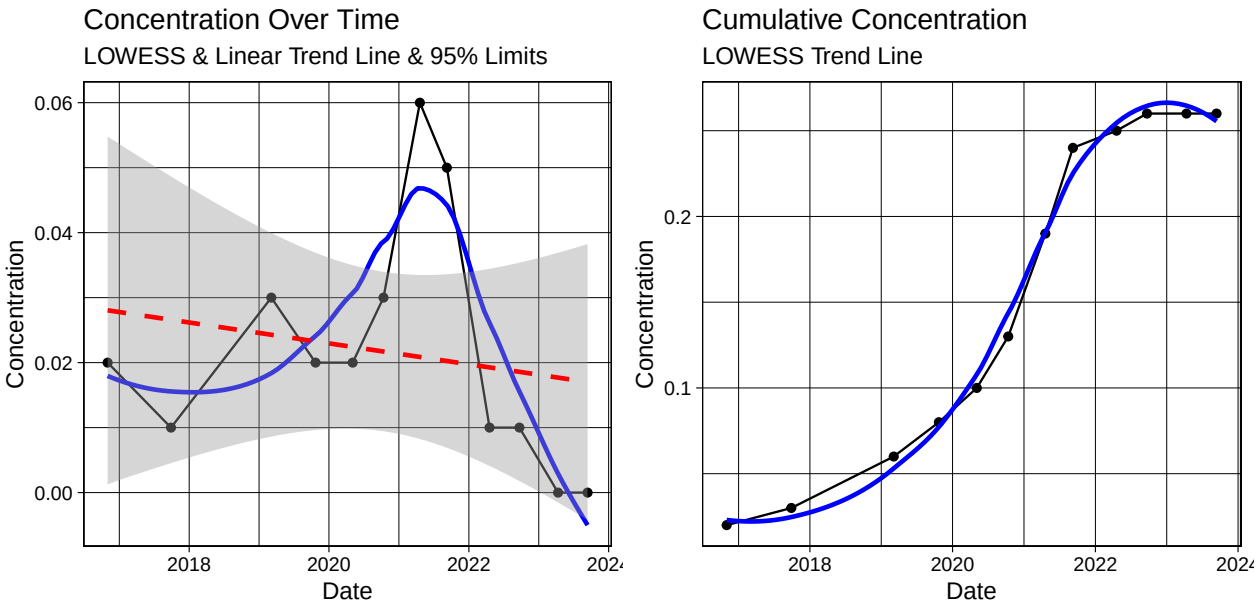
Kendall Trend Test Results Continuous	
n	12
z	0
p	1
S	1
varS	47.67
tau	0.04
mean	0
sd	0.01
cov	3.46
results	NO CLEAR TREND

Report for ID : MW110 and Analyte : PFOA



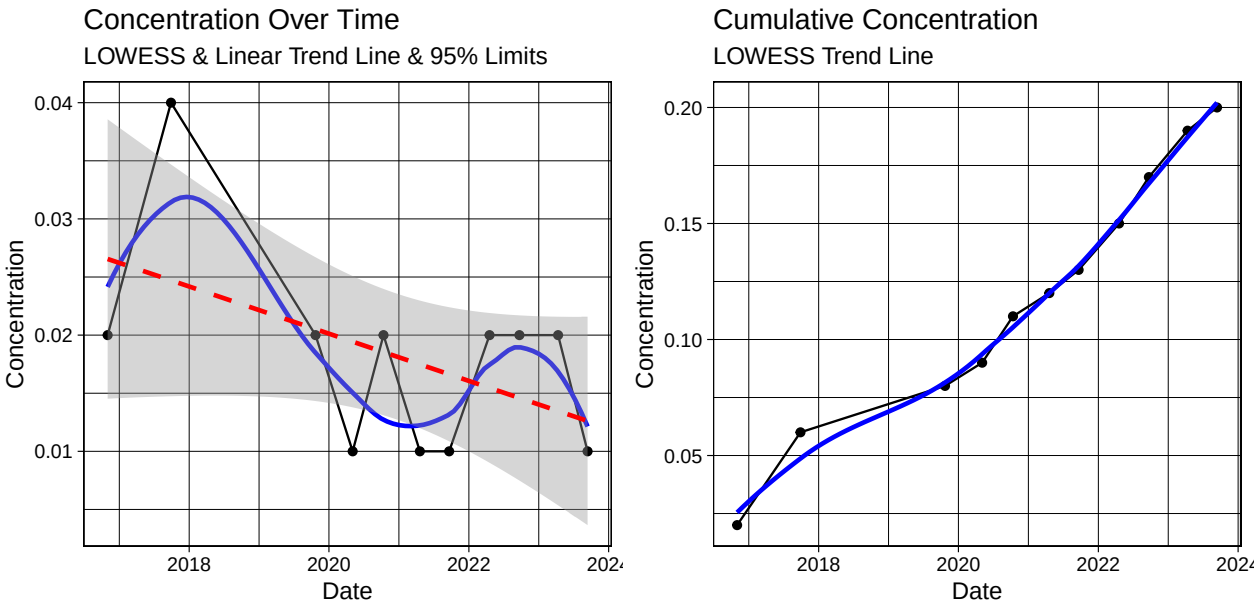
Kendall Trend Test Results Continuous	
n	12
z	-1.19
p	0.23
S	-18
varS	203.33
tau	-0.29
mean	0.02
sd	0.02
cov	0.85
results	STABLE

Report for ID : MW112 and Analyte : PFOA



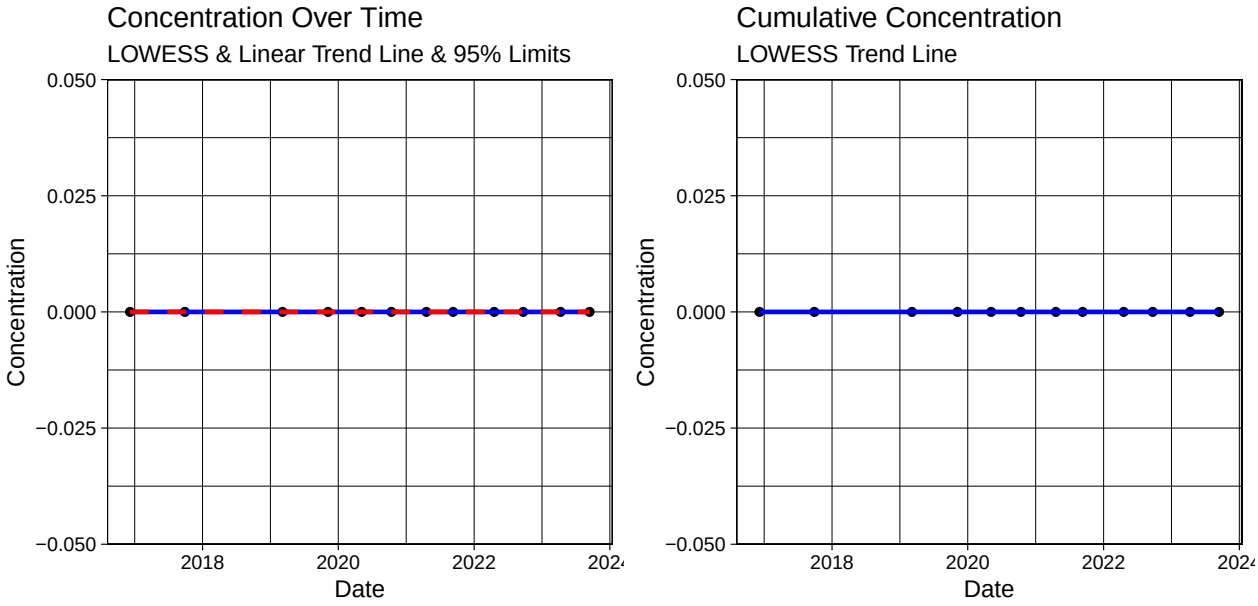
Kendall Trend Test Results Continuous	
n	11
z	-0.97
p	0.33
S	-12
varS	128
tau	-0.28
mean	0.02
sd	0.01
cov	0.48
results	STABLE

Report for ID : MW113 and Analyte : PFOA



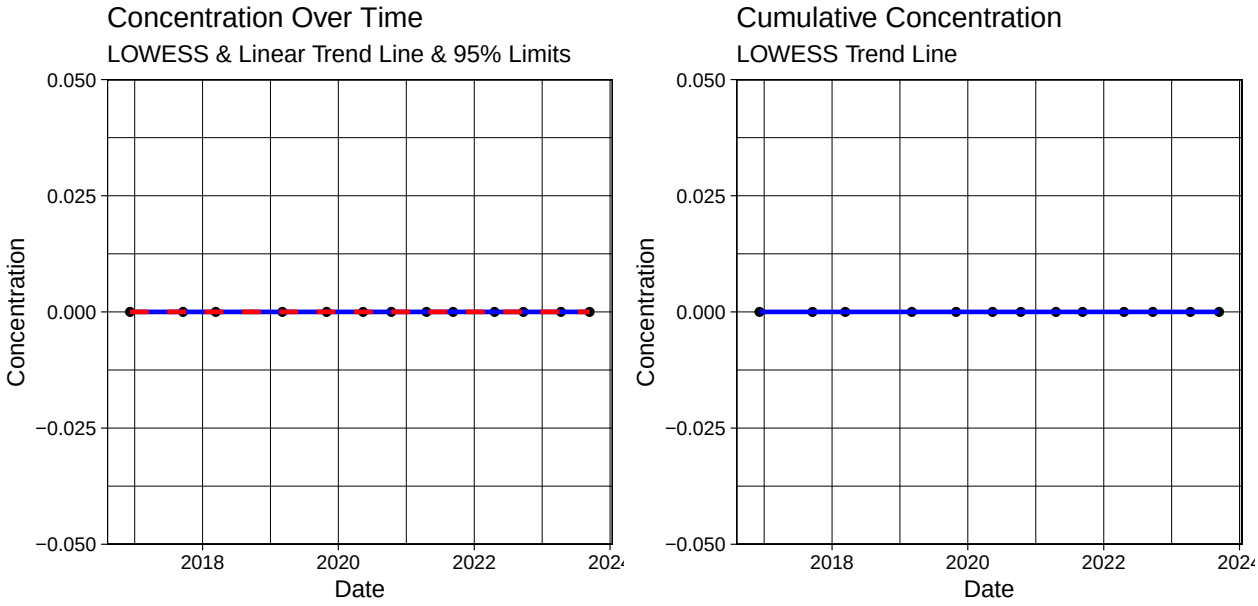
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW114 and Analyte : PFOA



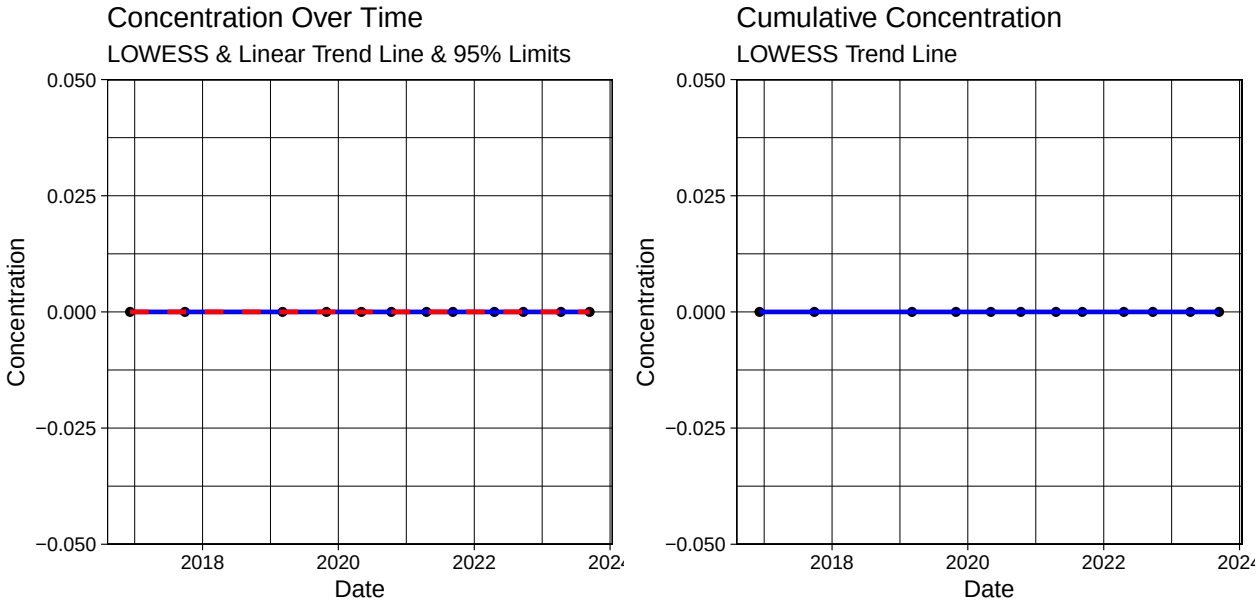
Kendall Trend Test Results Continuous	
n	13
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW115 and Analyte : PFOA



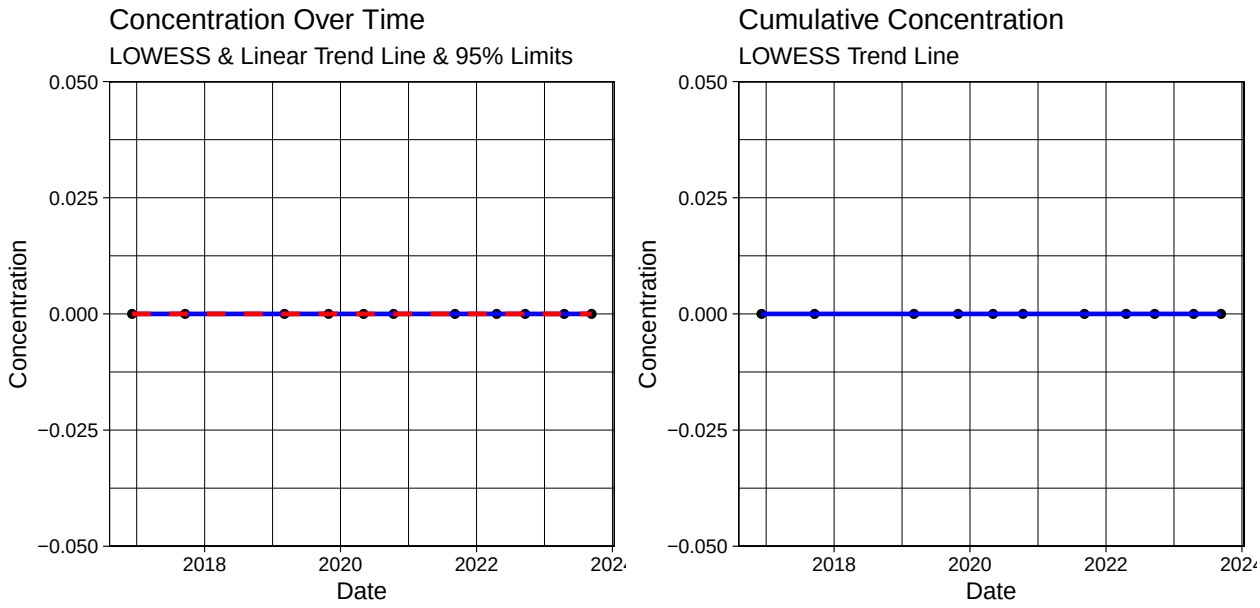
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW116 and Analyte : PFOA



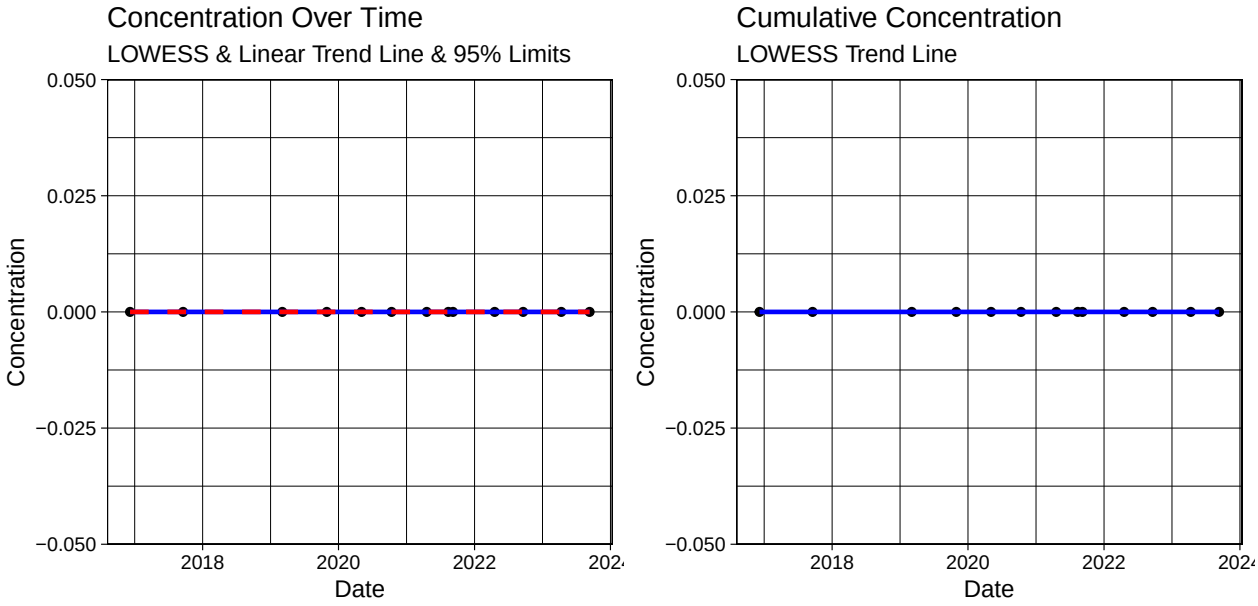
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW117 and Analyte : PFOA



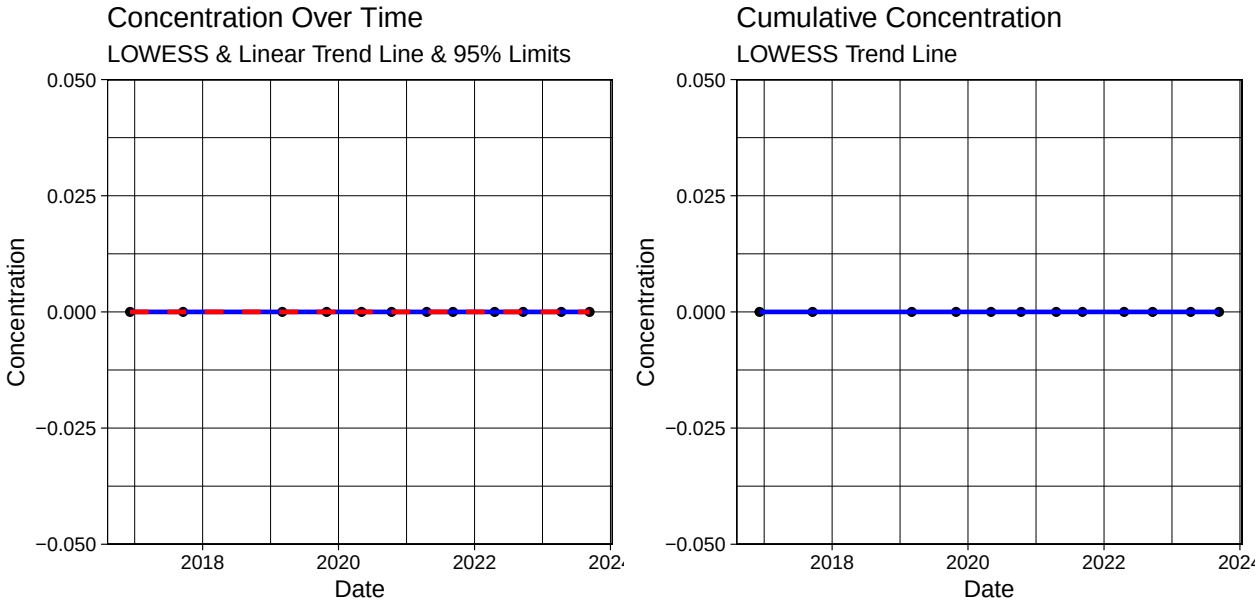
Kendall Trend Test Results Continuous	
n	13
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW118 and Analyte : PFOA



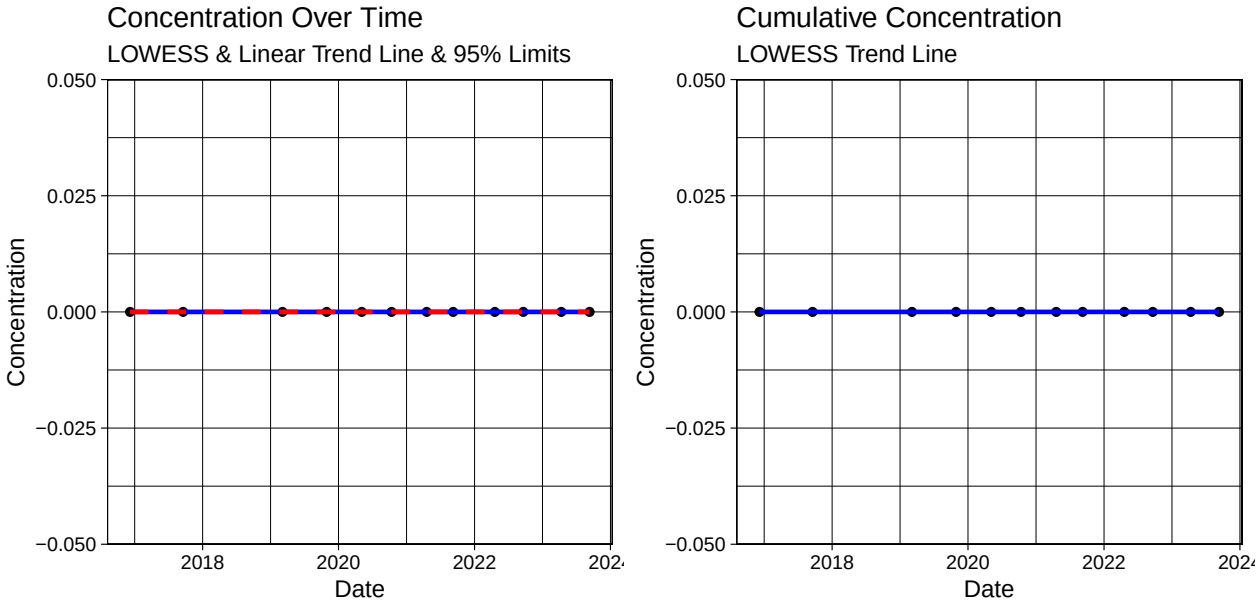
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW119 and Analyte : PFOA



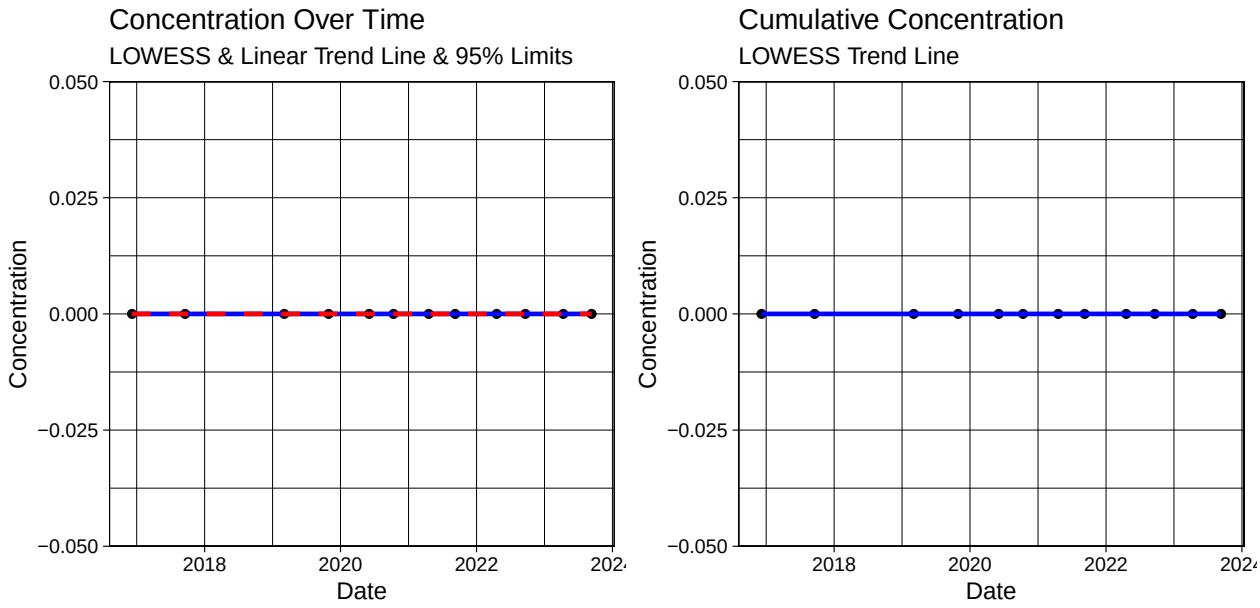
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW120 and Analyte : PFOA



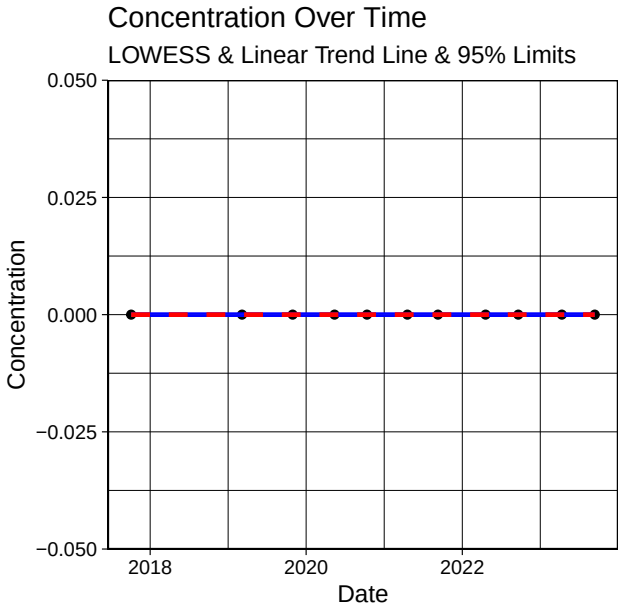
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

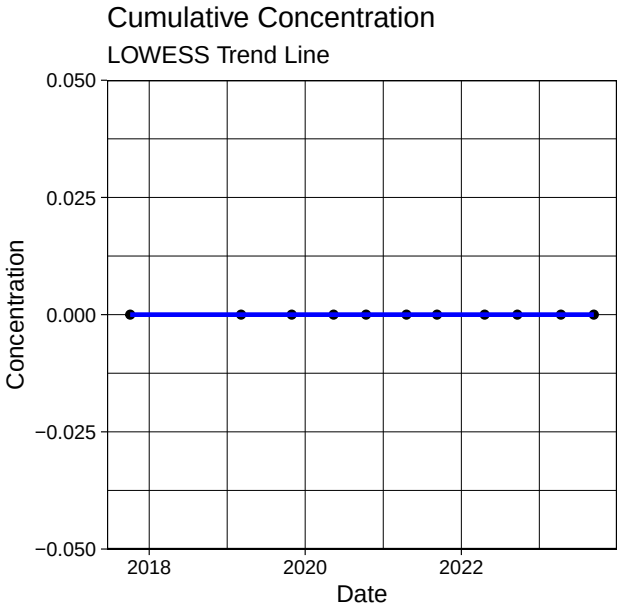
Report for ID : MW121 and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

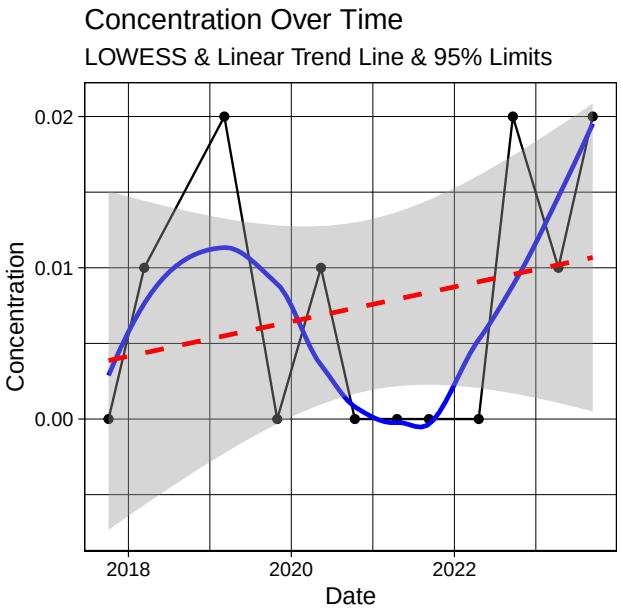
Report for ID : MW122D and Analyte : PFOA

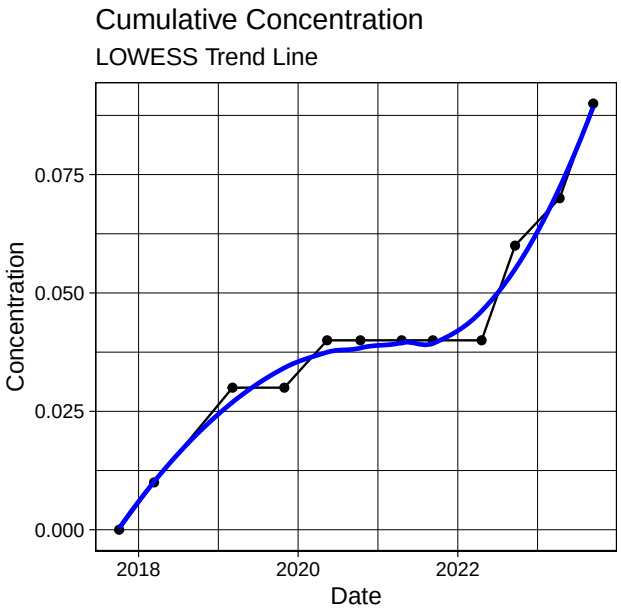




Kendall Trend Test Results Continuous	
n	12
z	0.75
p	0.45
S	11
varS	177
tau	0.2
mean	0.01
sd	0.01
cov	1.15
results	NO CLEAR TREND

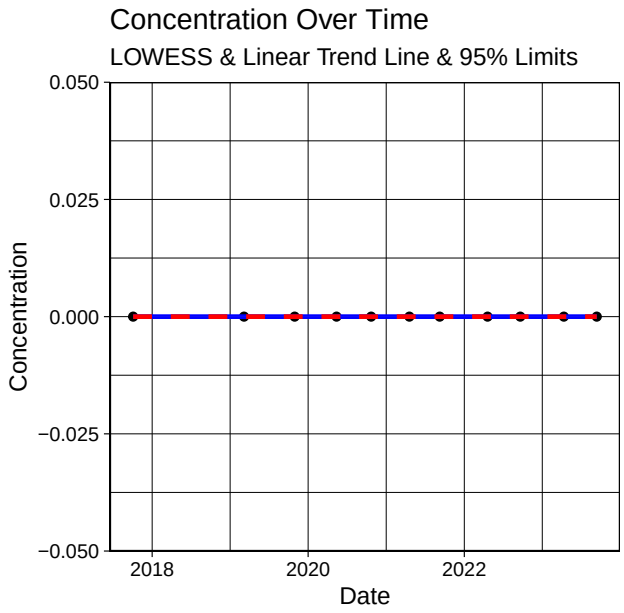
Report for ID : MW122S and Analyte : PFOA

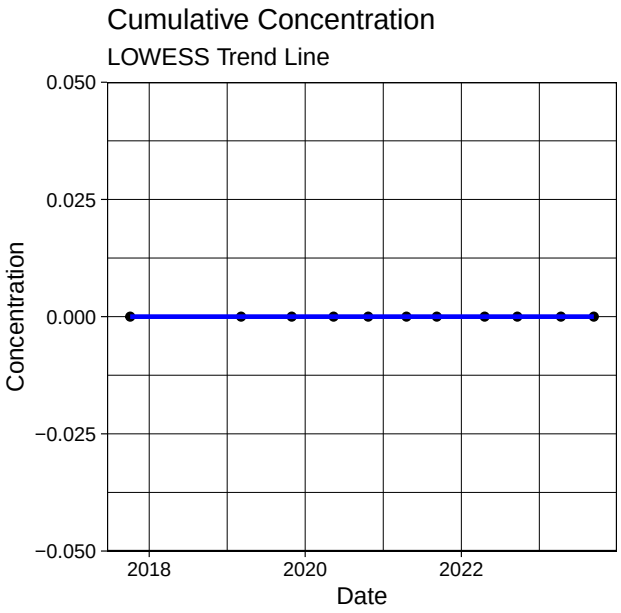




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

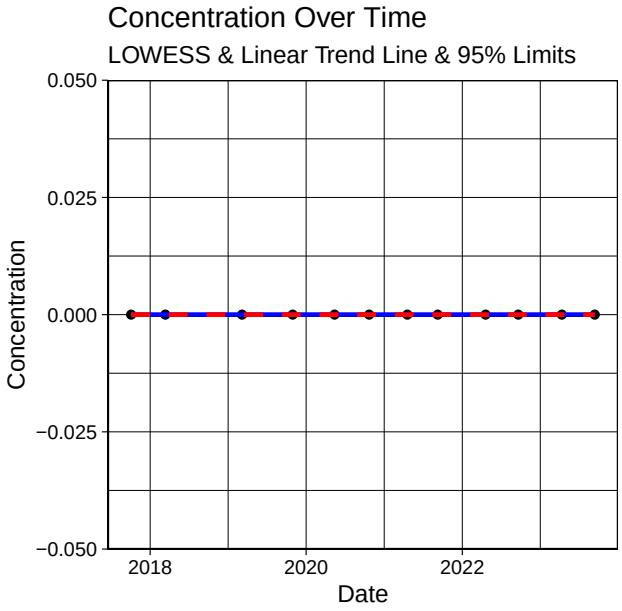
Report for ID : MW123D and Analyte : PFOA

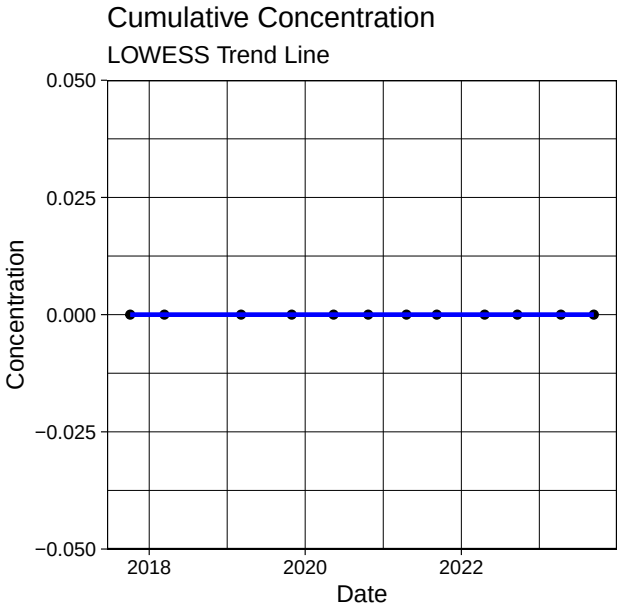




Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

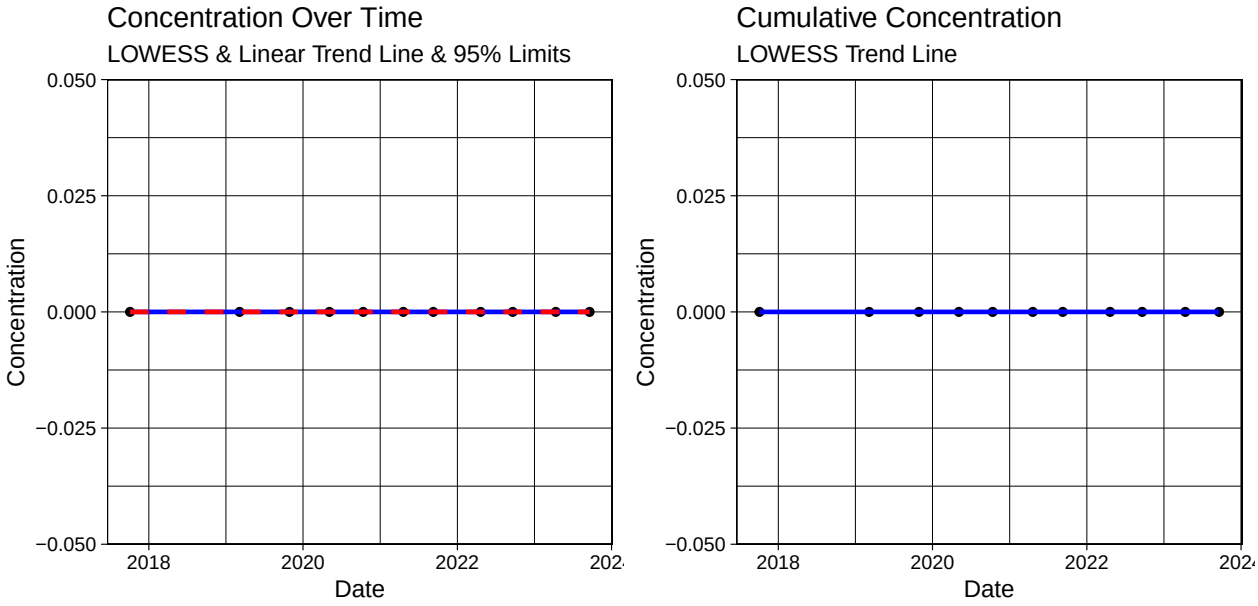
Report for ID : MW123S and Analyte : PFOA





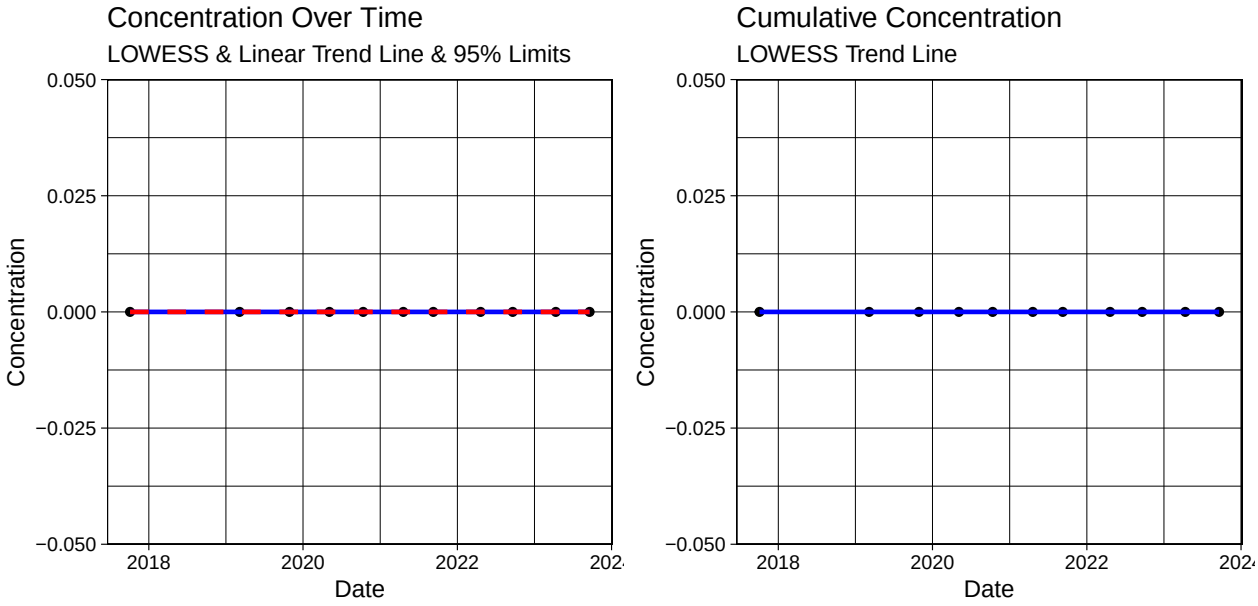
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW124D and Analyte : PFOA



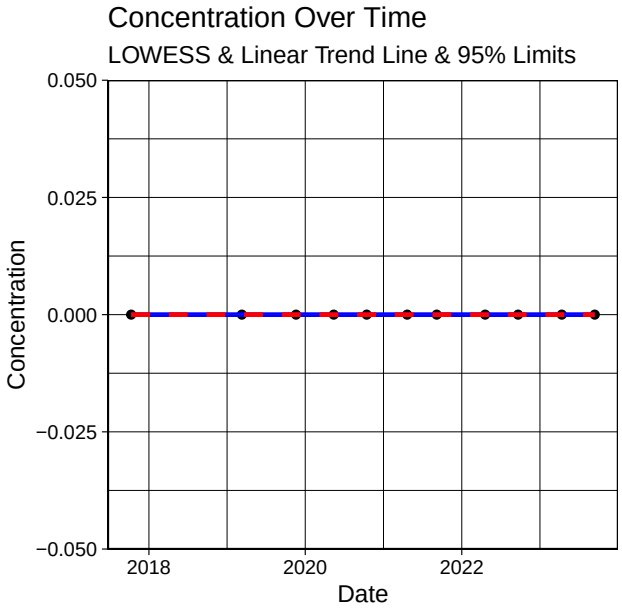
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

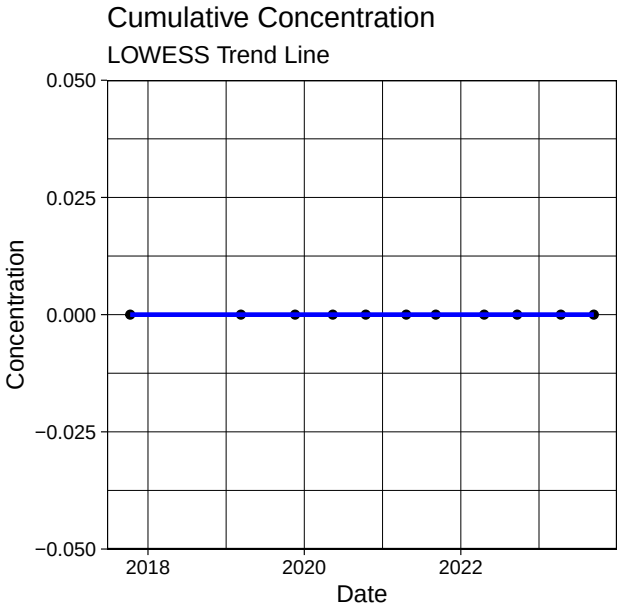
Report for ID : MW124S and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

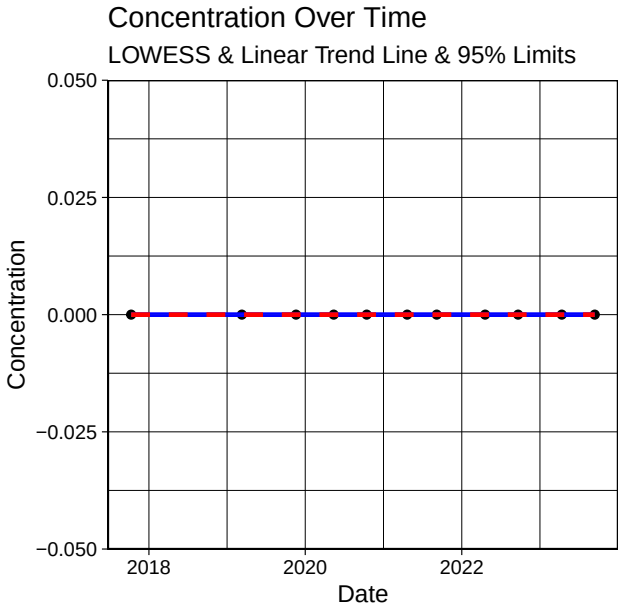
Report for ID : MW125D and Analyte : PFOA

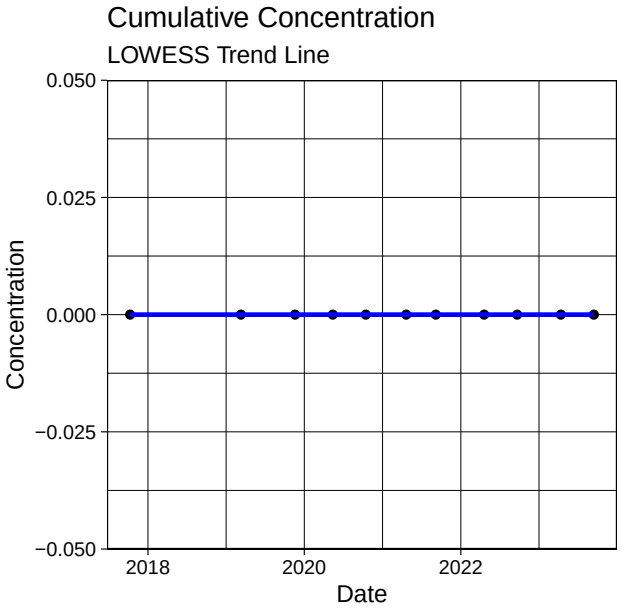




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

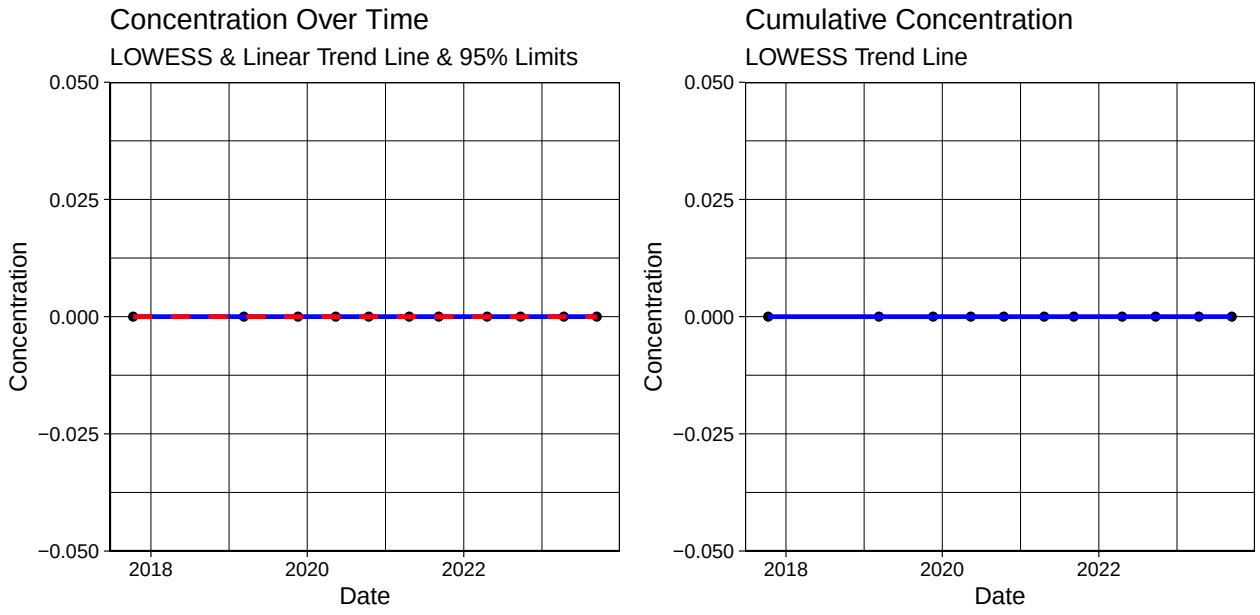
Report for ID : MW125S and Analyte : PFOA





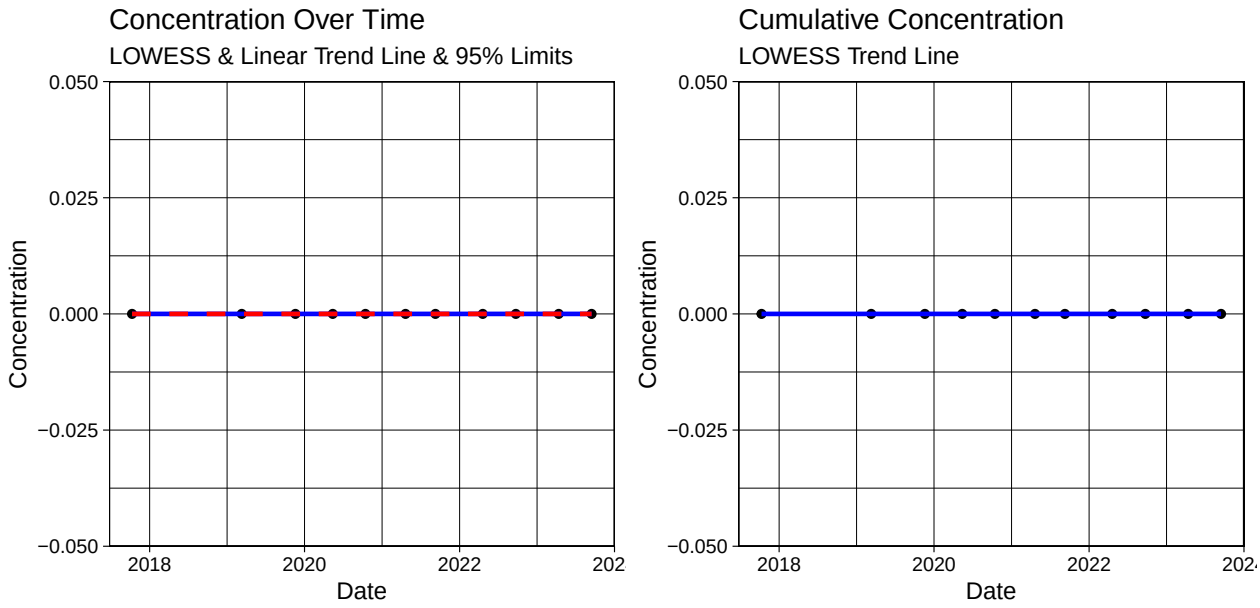
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW126 and Analyte : PFOA



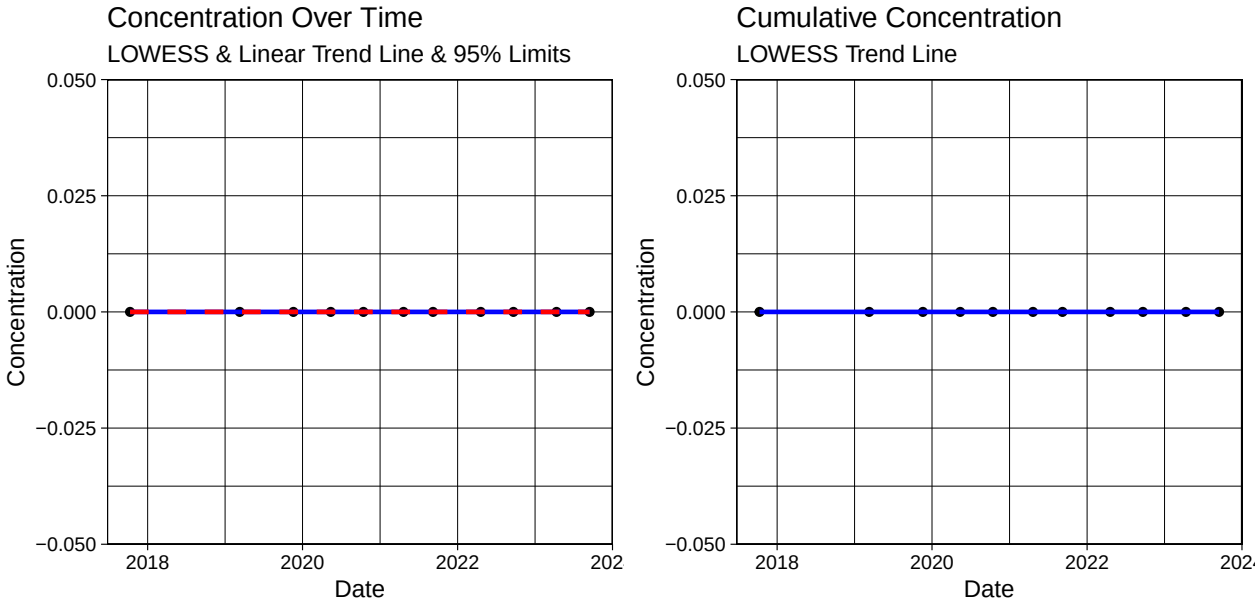
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW127 and Analyte : PFOA



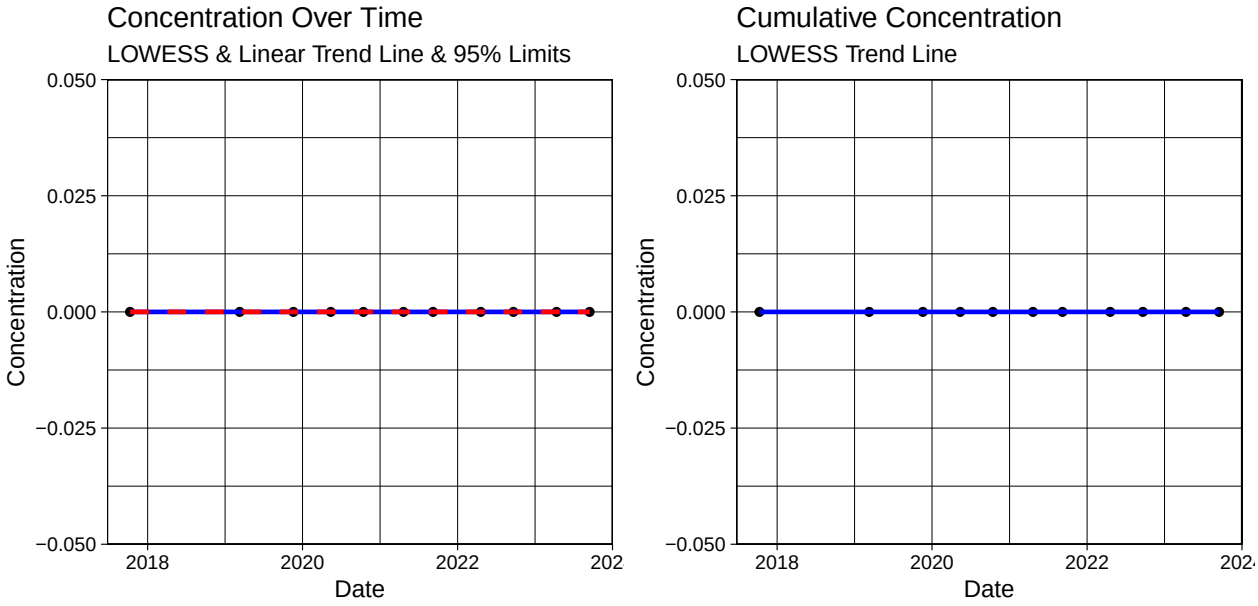
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128D and Analyte : PFOA



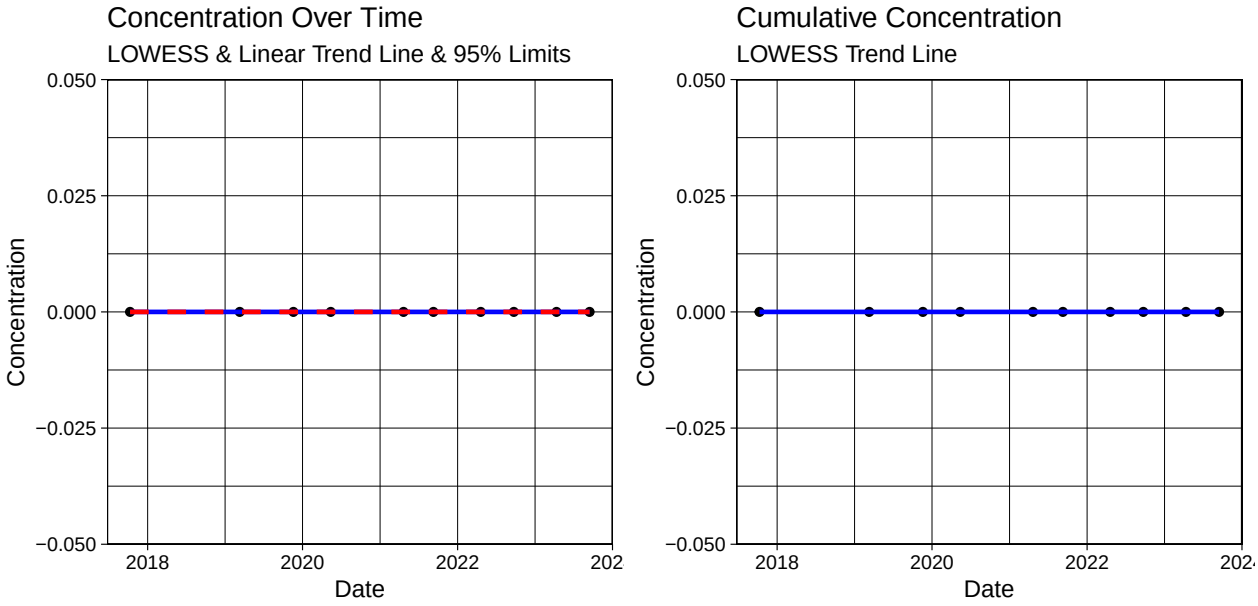
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW128S and Analyte : PFOA



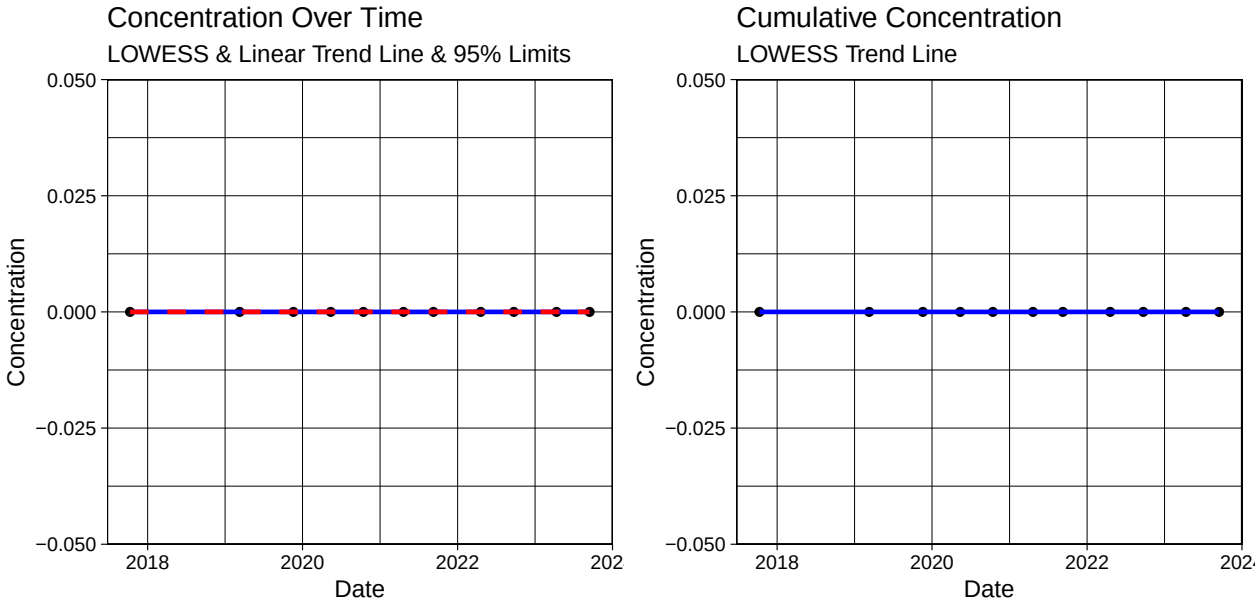
Kendall Trend Test Results Continuous	
n	10
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129D and Analyte : PFOA



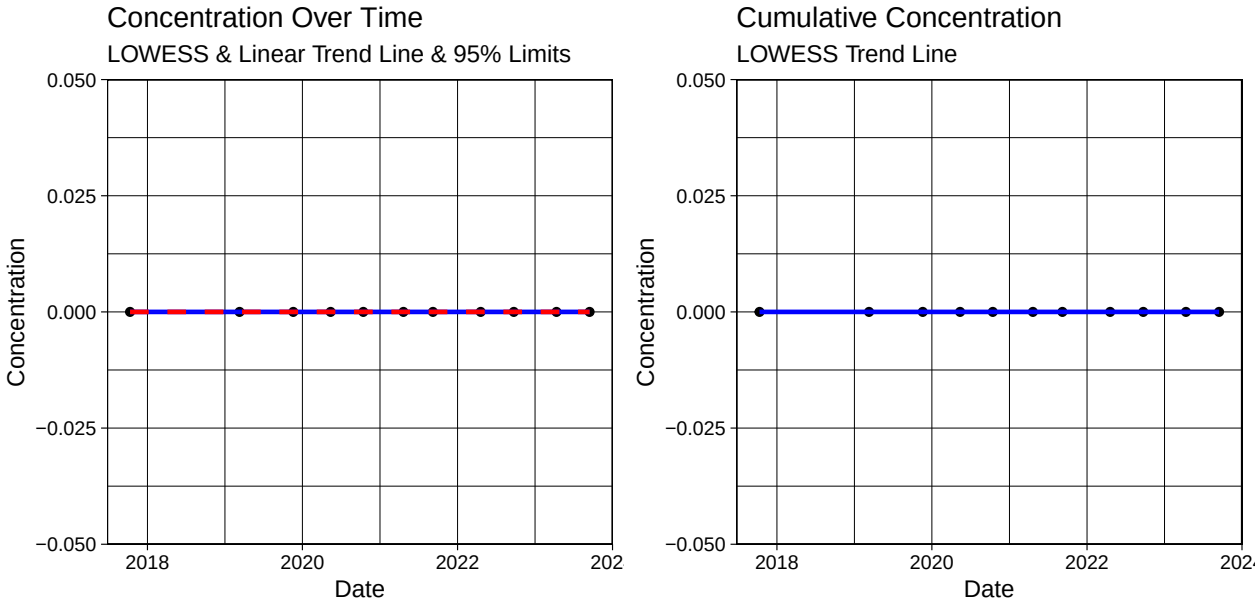
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW129S and Analyte : PFOA



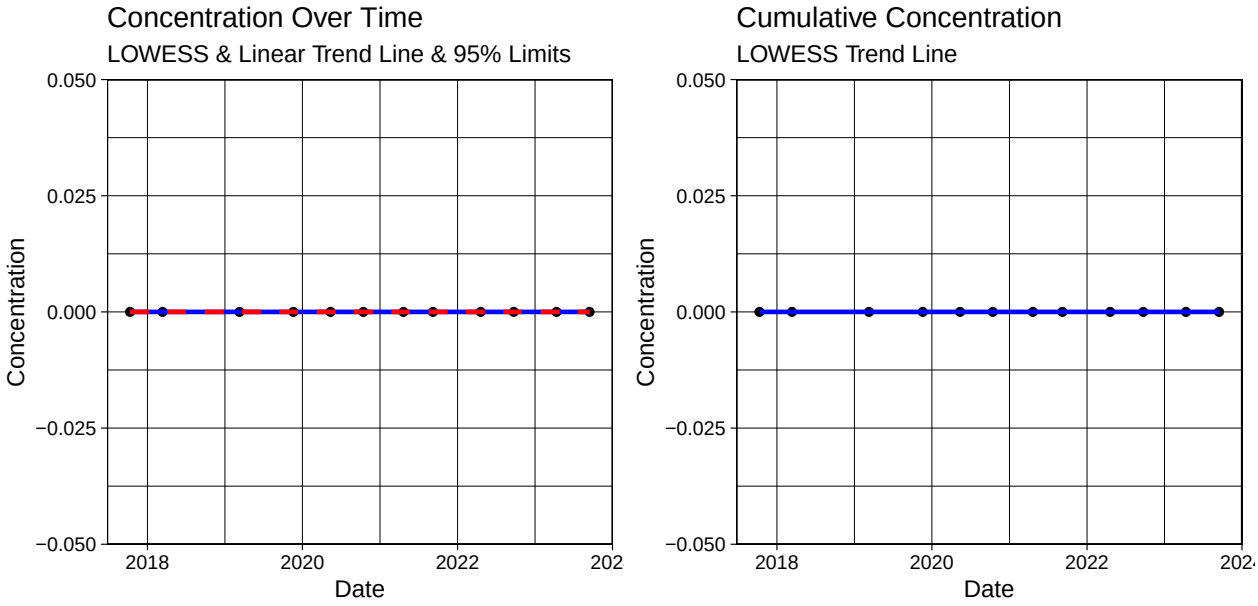
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW130D and Analyte : PFOA



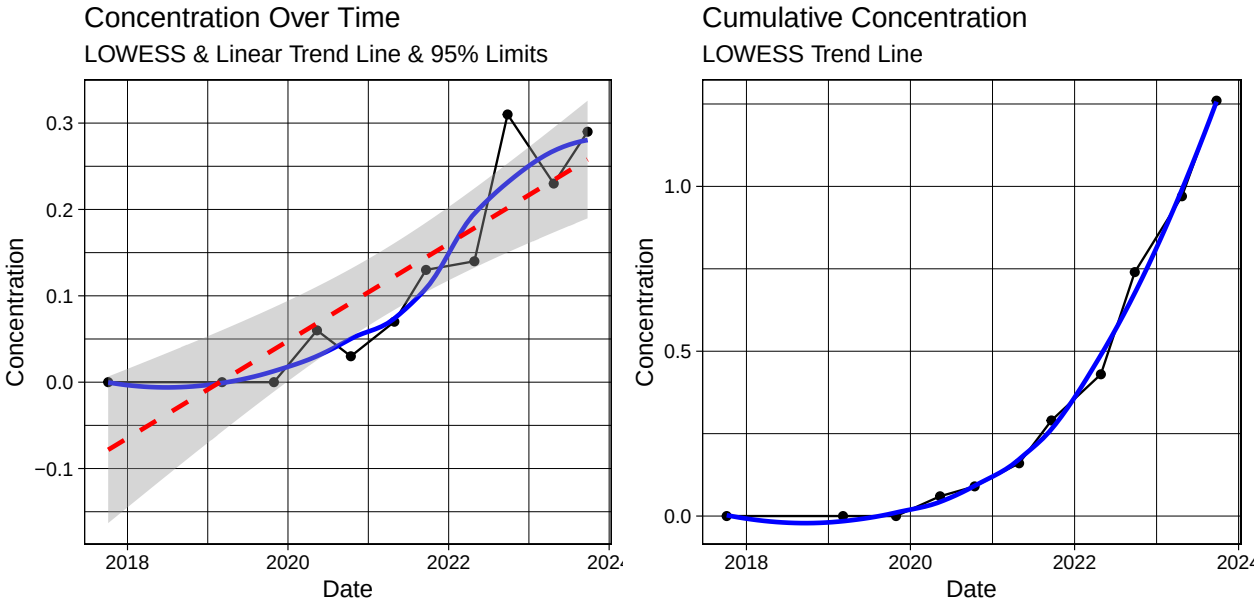
Kendall Trend Test Results Continuous	
n	12
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW130S and Analyte : PFOA



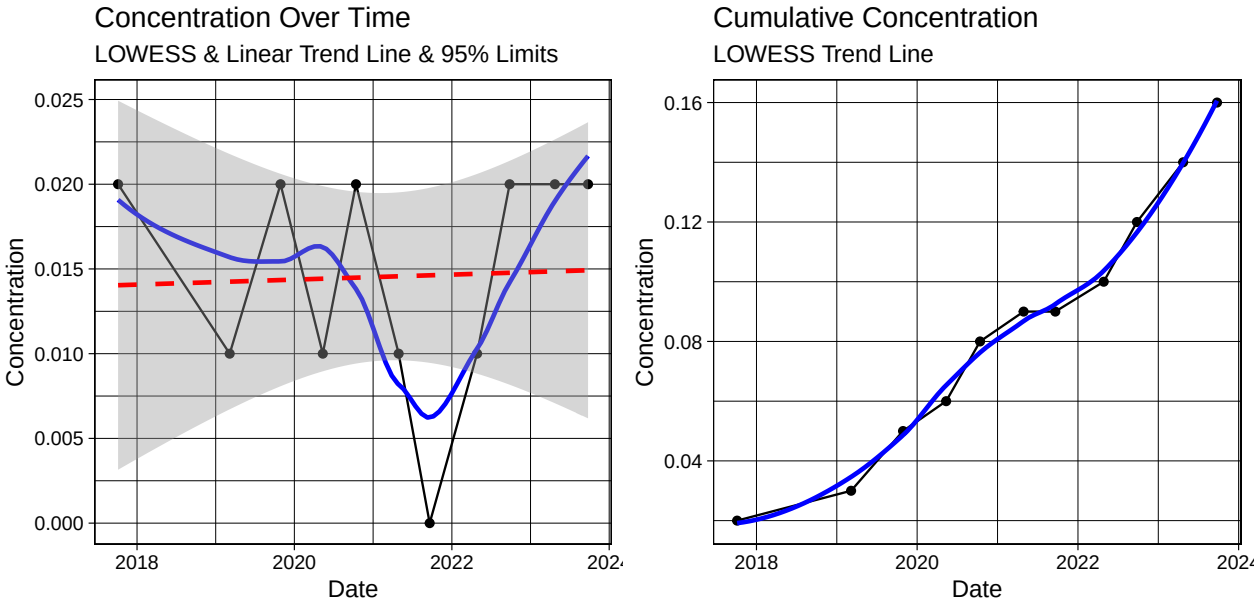
Kendall Trend Test Results Continuous	
n	11
z	3.54
p	0
S	46
varS	161.33
tau	0.86
mean	0.11
sd	0.12
cov	1.01
results	INCREASING

Report for ID : MW132D and Analyte : PFOA



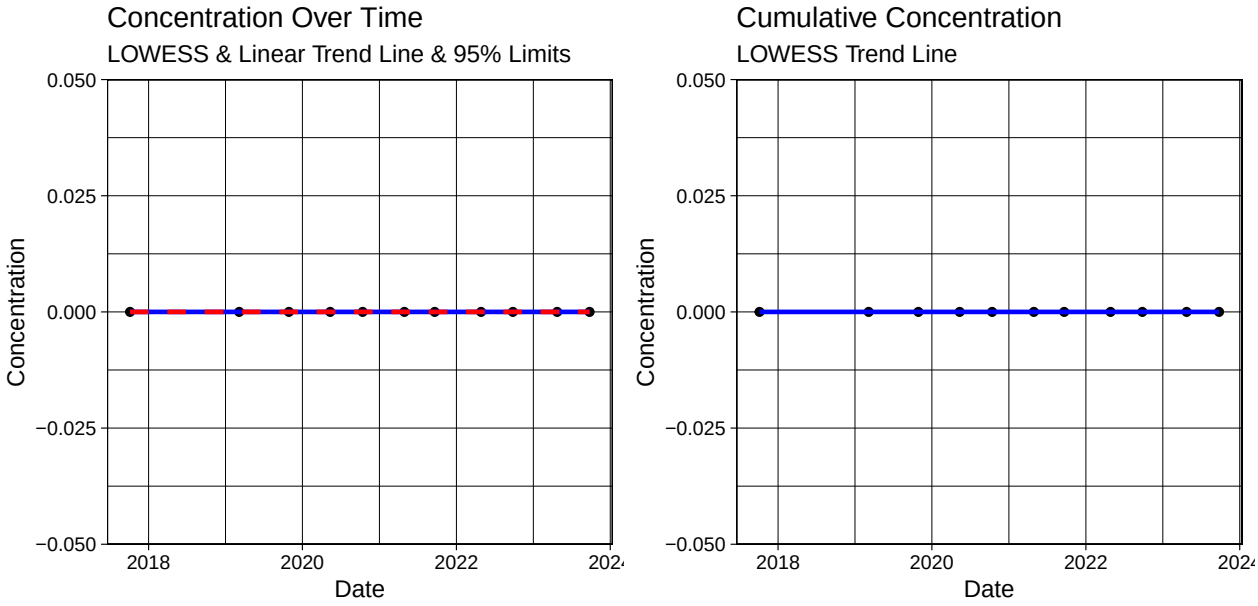
Kendall Trend Test Results Continuous	
n	11
z	0.27
p	0.79
S	4
varS	128
tau	0.09
mean	0.01
sd	0.01
cov	0.47
results	NO CLEAR TREND

Report for ID : MW132S and Analyte : PFOA



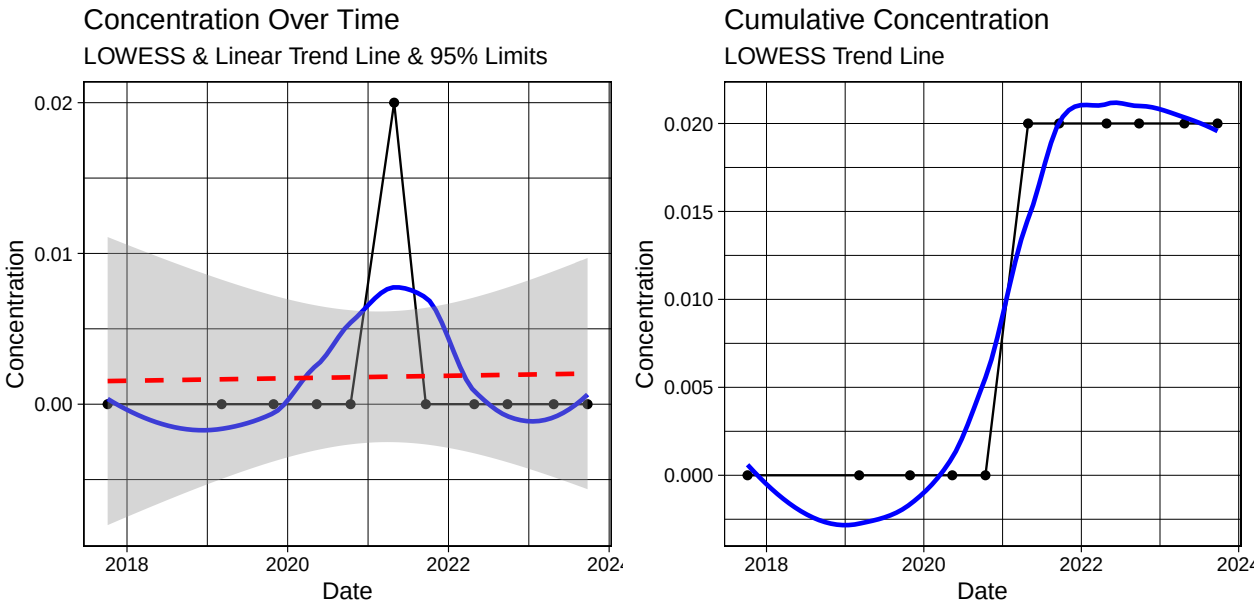
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW134D and Analyte : PFOA



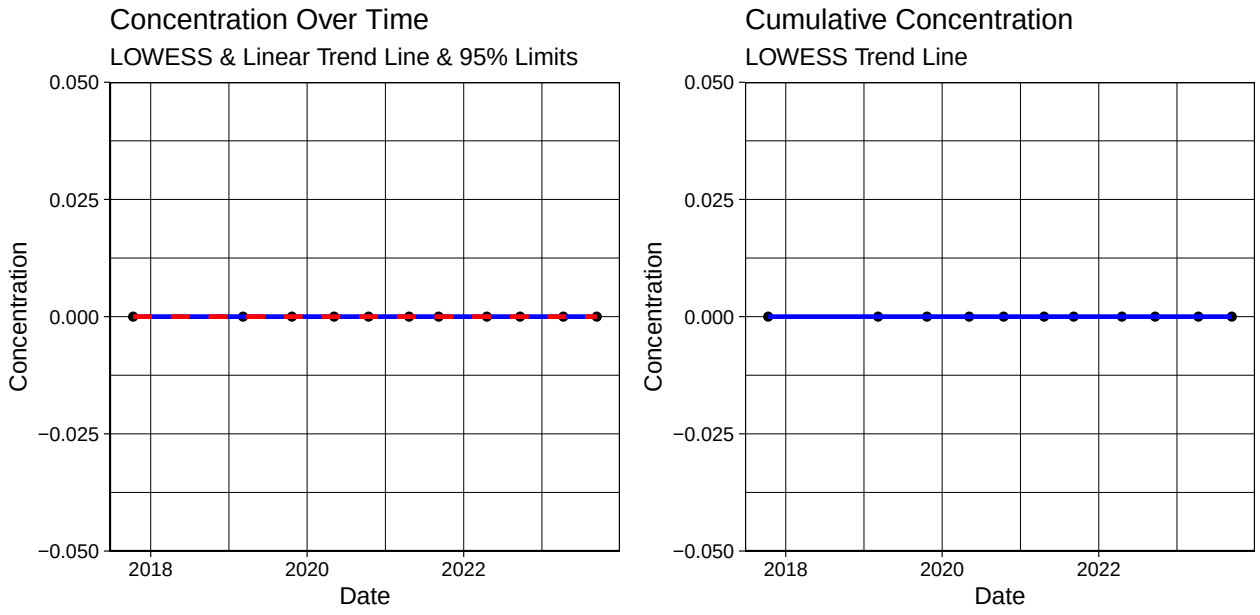
Kendall Trend Test Results Continuous	
n	11
z	0
p	1
S	0
varS	40
tau	0
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

Report for ID : MW134S and Analyte : PFOA



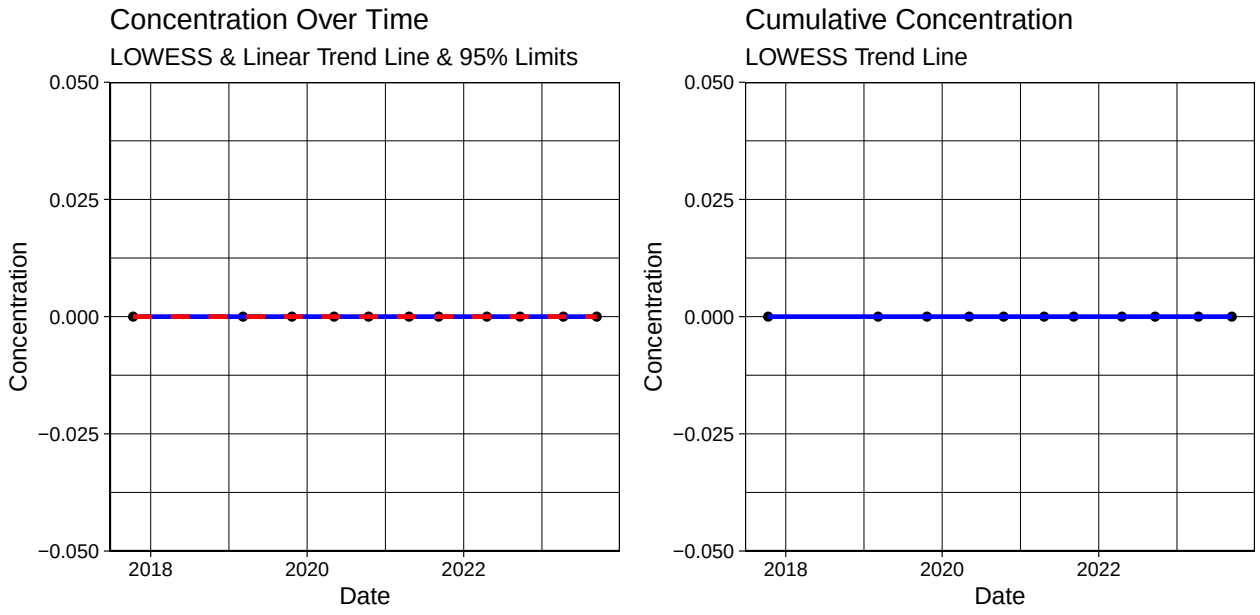
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW136 and Analyte : PFOA



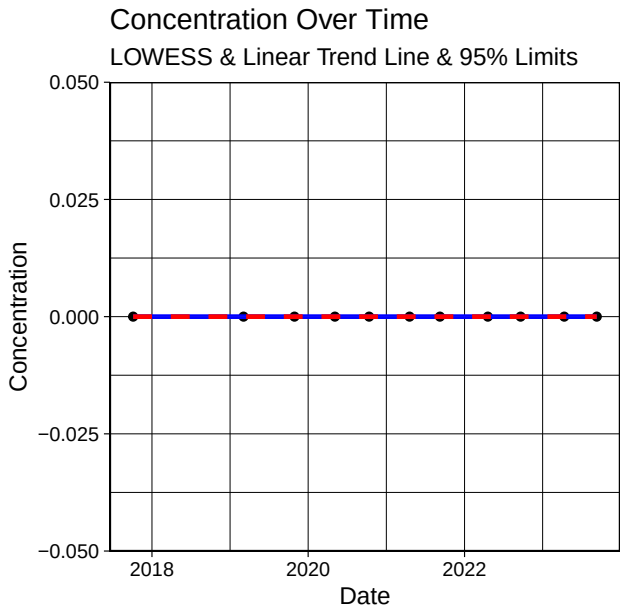
Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

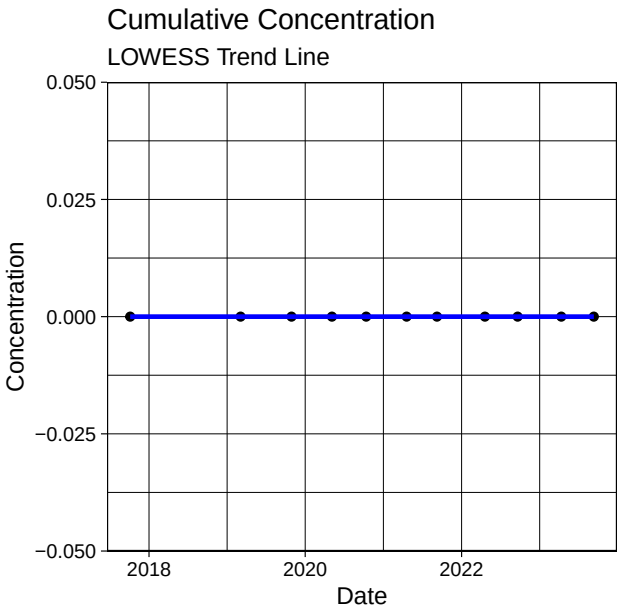
Report for ID : MW137 and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

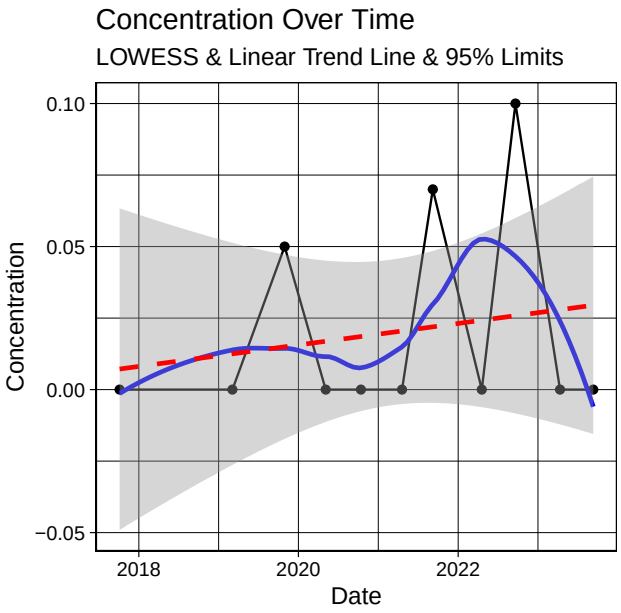
Report for ID : MW138 and Analyte : PFOA

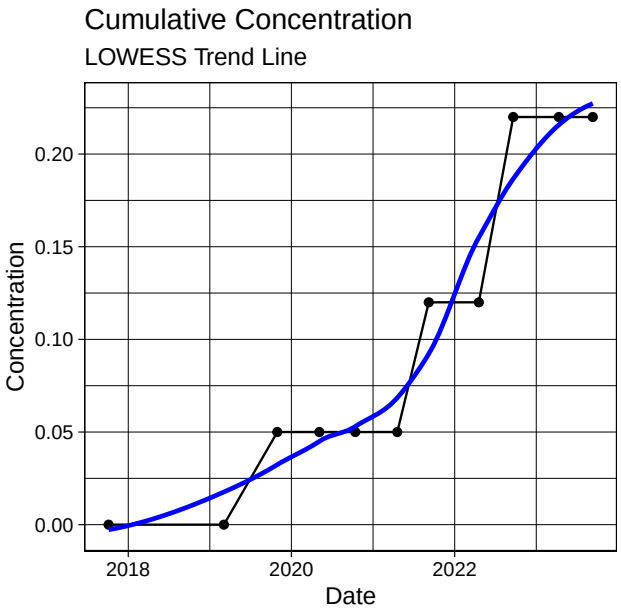




Kendall Trend Test Results Continuous	
n	11
z	0.4
p	0.69
S	5
varS	99.67
tau	0.13
mean	0.02
sd	0.04
cov	1.8
results	NO CLEAR TREND

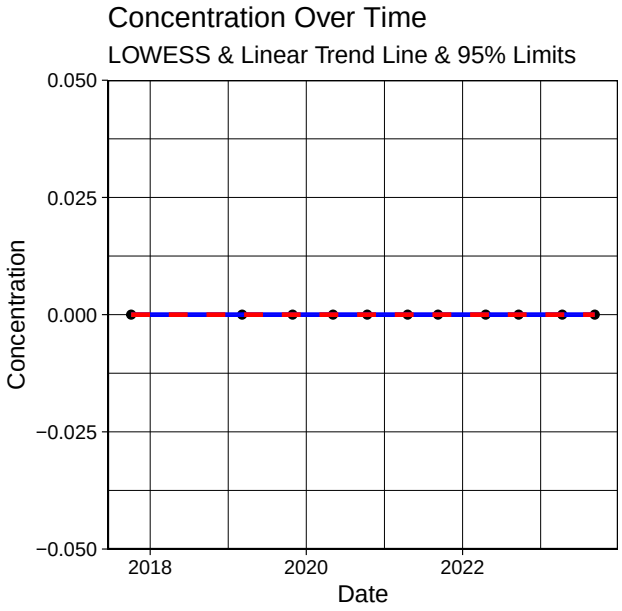
Report for ID : MW139 and Analyte : PFOA

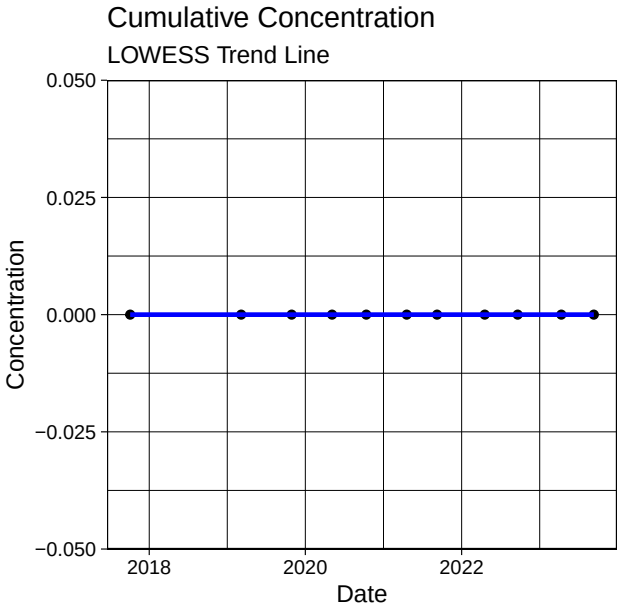




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

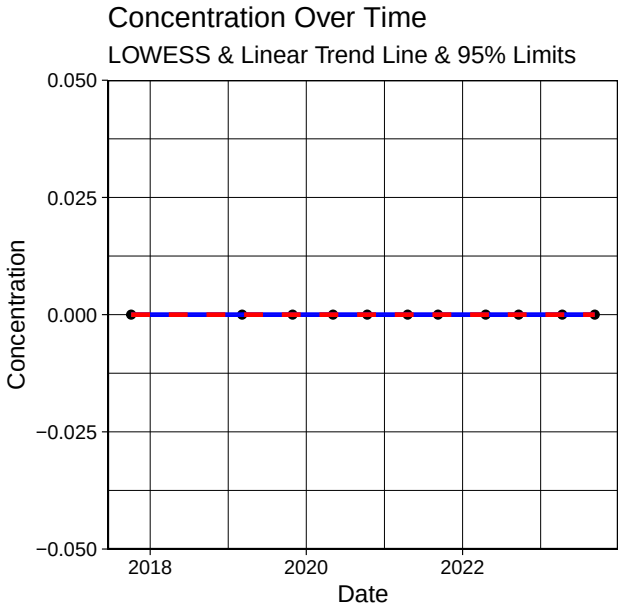
Report for ID : MW140D and Analyte : PFOA

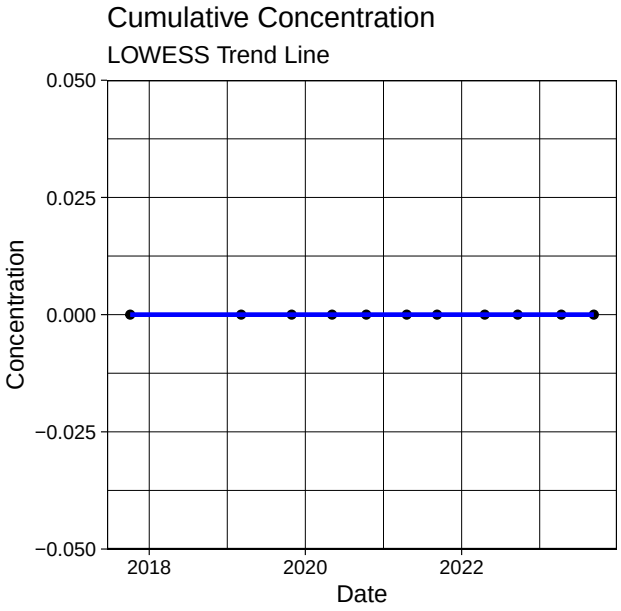




Kendall Trend Test Results Continuous	
n	11
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

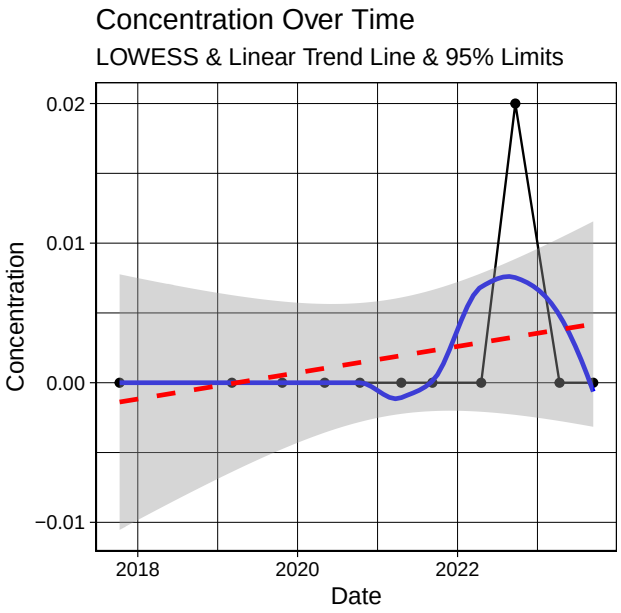
Report for ID : MW140S and Analyte : PFOA

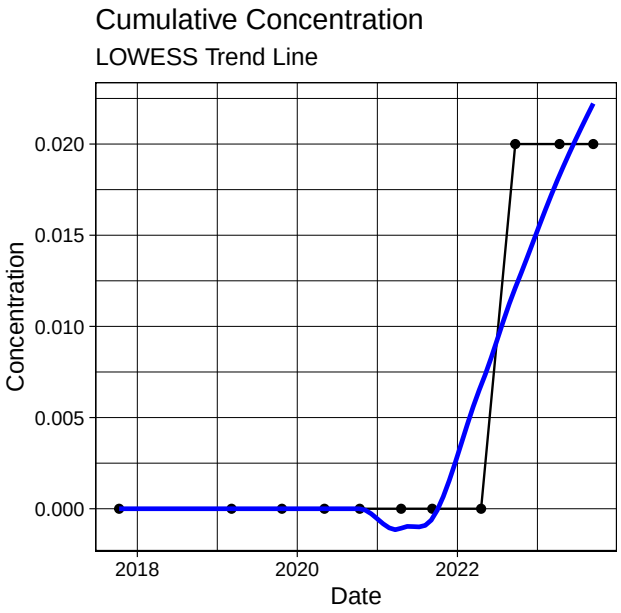




Kendall Trend Test Results Continuous	
n	11
z	0.79
p	0.43
S	6
varS	40
tau	0.26
mean	0
sd	0.01
cov	3.32
results	NO CLEAR TREND

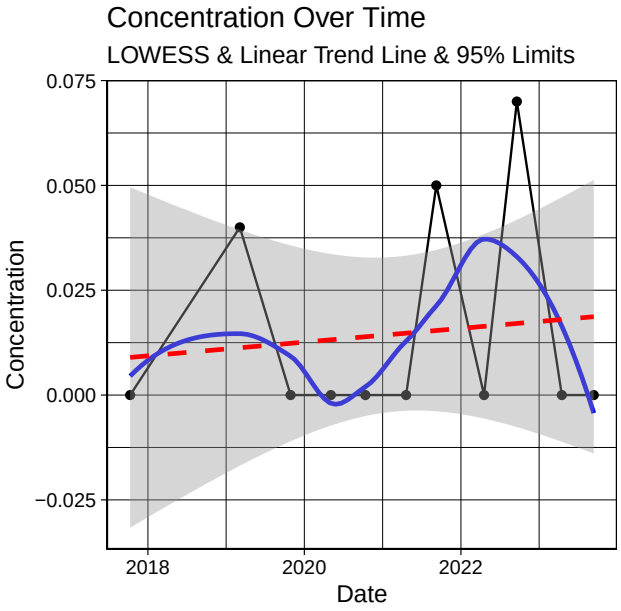
Report for ID : MW146 and Analyte : PFOA

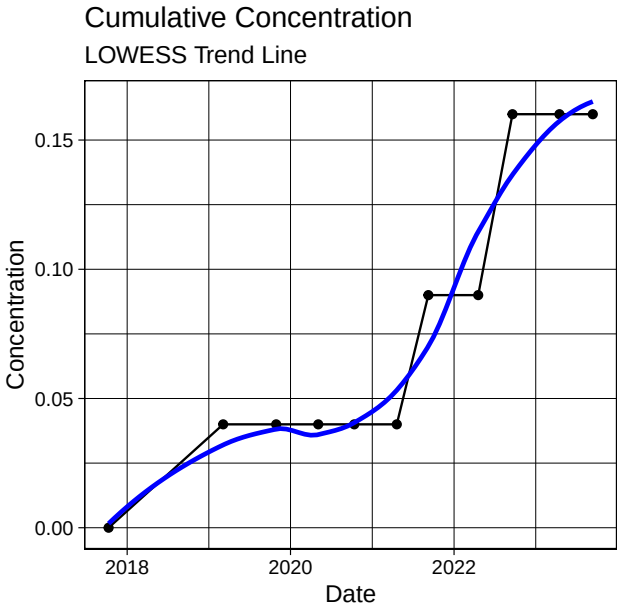




Kendall Trend Test Results Continuous	
n	11
z	0.2
p	0.84
S	3
varS	99.67
tau	0.08
mean	0.01
sd	0.03
cov	1.78
results	NO CLEAR TREND

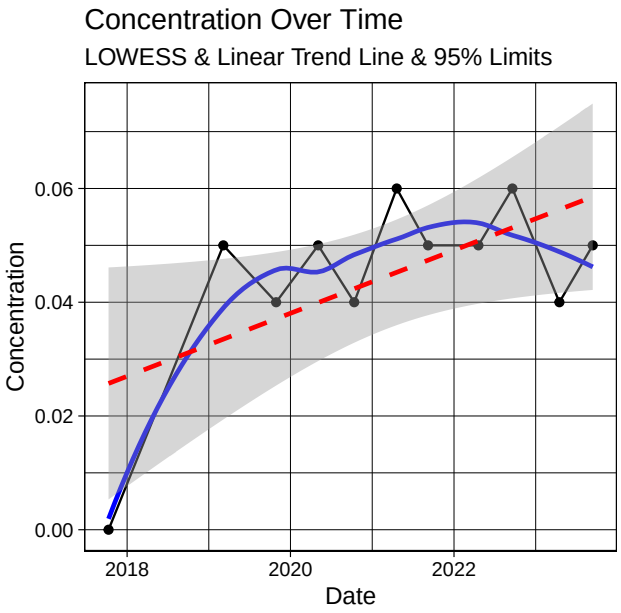
Report for ID : MW149 and Analyte : PFOA

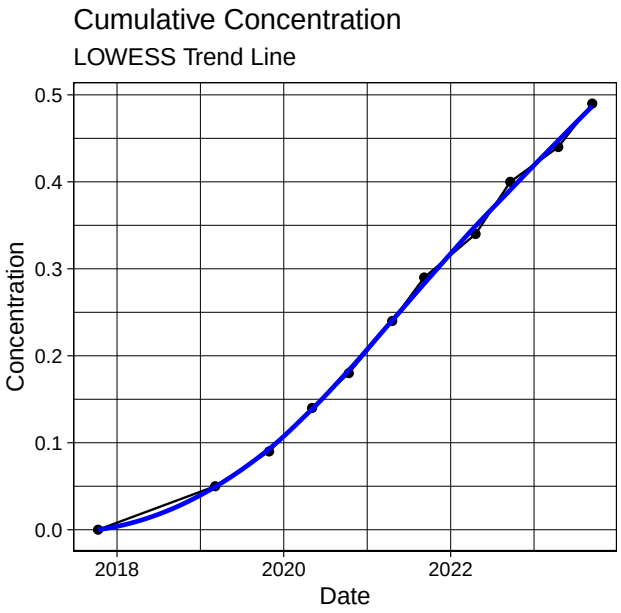




Kendall Trend Test Results Continuous	
n	11
z	1.17
p	0.24
S	15
varS	143.67
tau	0.32
mean	0.04
sd	0.02
cov	0.37
results	NO CLEAR TREND

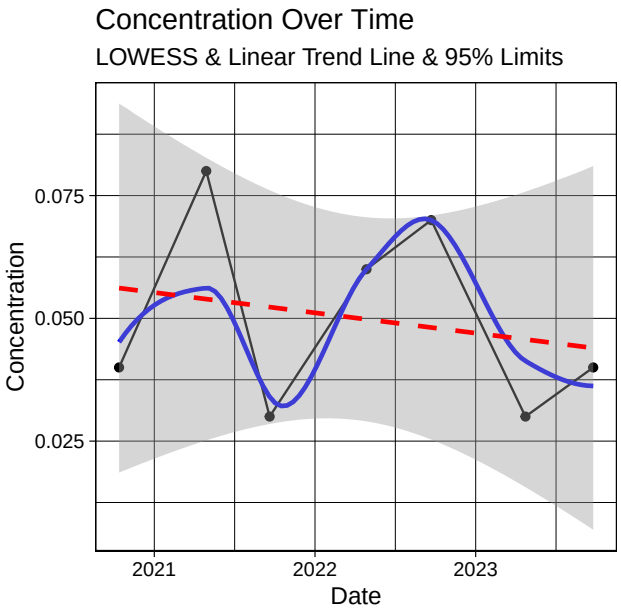
Report for ID : MW150 and Analyte : PFOA

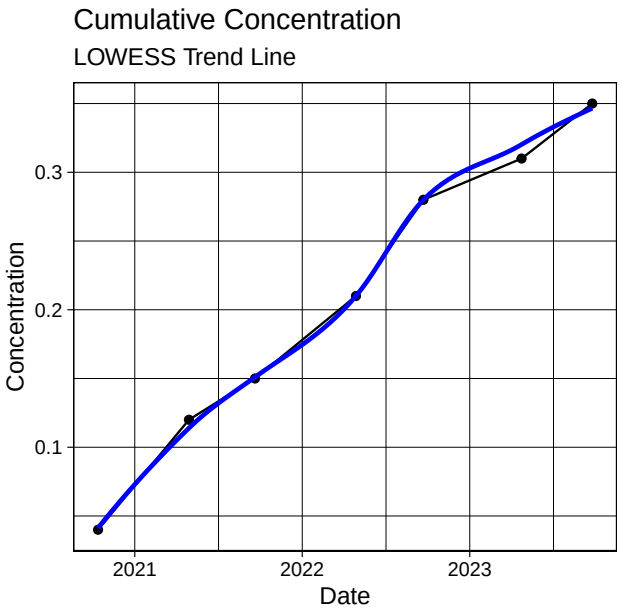




Kendall Trend Test Results Continuous	
n	7
z	-0.31
p	0.76
S	-3
varS	42.33
tau	-0.15
mean	0.05
sd	0.02
cov	0.4
results	STABLE

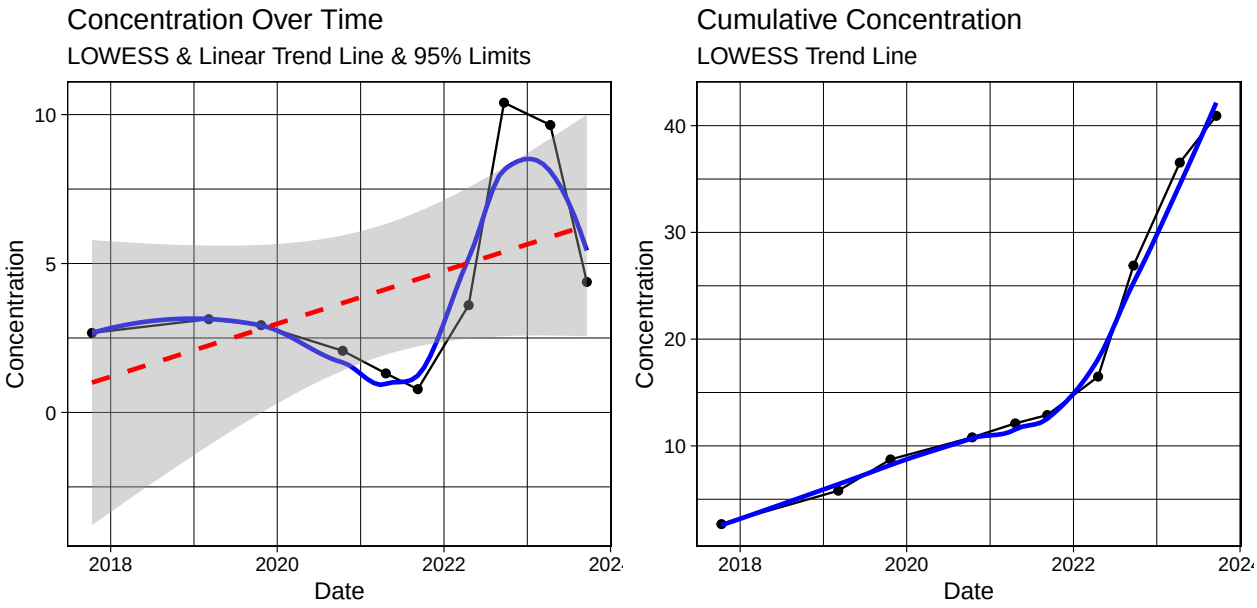
Report for ID : MW155S and Analyte : PFOA





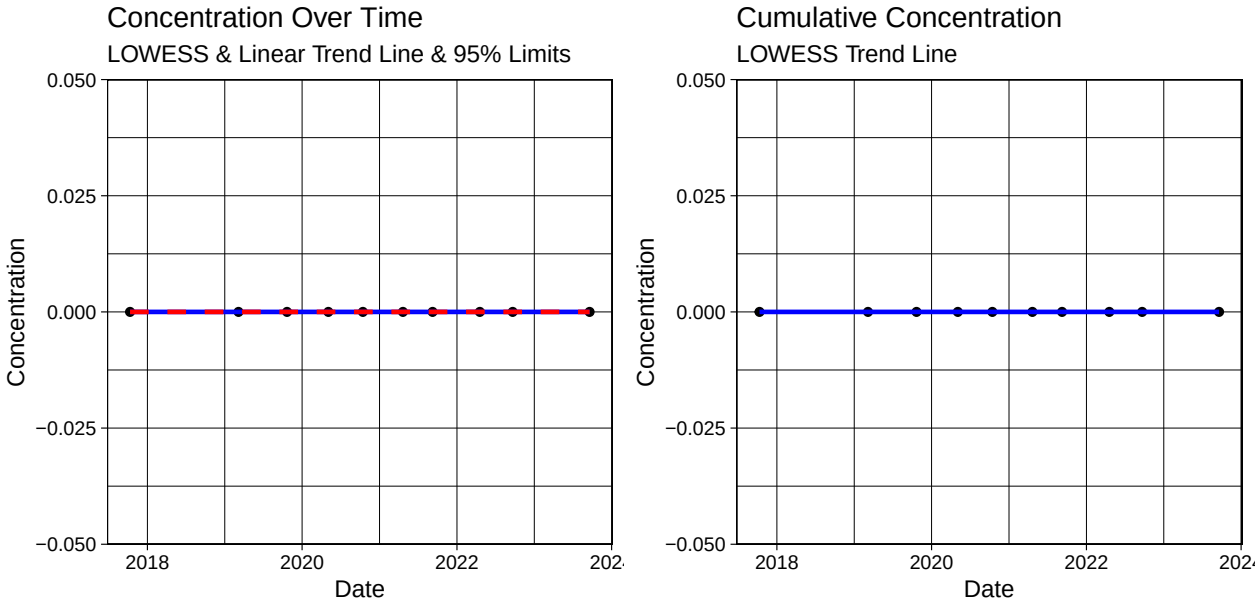
Kendall Trend Test Results Continuous	
n	10
z	1.07
p	0.28
S	13
varS	125
tau	0.29
mean	4.09
sd	3.3
cov	0.81
results	NO CLEAR TREND

Report for ID : MW202 and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	10
z	NaN
p	NaN
S	0
varS	0
tau	NaN
mean	0
sd	0
cov	NaN
results	NA

Report for ID : MW205 and Analyte : PFOA



Kendall Trend Test Results Continuous	
n	12
z	-1.62
p	0.1
S	-23
varS	183.67
tau	-0.41
mean	0.01
sd	0.01
cov	1
results	NO CLEAR TREND

Report for ID : MW218 and Analyte : PFOA

